



COAL MINING AND RECLAMATION PERMIT

Issued To: AMERICAN ENERGY CORP
43521 Mayhugh Hill Rd.
Twp Hwy 88
Beallsville, OH 43716

Telephone: (740) 926-9152

Permit Number: D-425
Application Number: D-425-10
Acreage: 0
Underground Acreage: 160.8
Effective: 06/26/2009
Expires: 10/21/2009

Type of Operation: Underground (Room and Pillar)

CONDITIONS

CONDITION TYPE	DESCRIPTION
Archaeology	Prior to any repair of damage from the mining operation of surface or structures that are 50 years or older, consultation with the Division and the Ohio Historic Preservation Office is required.

LOCATION IS NOT AVAILABLE

The issuance of this permit means only that the application to conduct a coal mining operation meets the requirements of Chapter 1513 of the Revised Code, and as such DOES NOT RELIEVE the operator of any obligation to meet other federal, state or local requirements.

This permit is issued in accordance with and subject to the provisions, conditions, and limitations of Chapter 1513 of the Revised Code and Chapters 1501:13-1, 1501:13-3 through 1501:13-14 of the Administrative Code.

The water monitoring plan for this permit shall be:

Quality: ~~See Page 26, F3 of the Permit Application~~

Quantity: ~~See Page 26, F3 of the Permit Application~~

Note: These monitoring requirements are separate from NPDES monitoring requirements.

Signature: John F. Hunter ^{BH}
Chief, Mineral Resources Management

Date: 06/26/2009

OPERATOR



PERMIT SUMMARY SHEET

Division of Mineral Resources Management

Permit Number: D-425

Application Number: D-425-10

See permit cover sheet for specific conditions and hydrologic monitoring requirements.

Inspector's Note:

This summary is designed only to advise you of important provisions of a permit that require your attention and monitoring. Your familiarity with requirements and permitted activities will insure that mining and reclamation occurs as was intended and approved at the time of permit issuance. Please take the time to review relevant provisions of the permit carefully and thoroughly. Should you have questions about this or any permit, please do not hesitate to contact the application manager within the Permitting Section.

Items marked are applicable to this permit:

- | | |
|--|--|
| <input type="checkbox"/> Auger Mining/Highwall Mining | <input type="checkbox"/> Beneficial Use of CCB's |
| <input type="checkbox"/> Alternate Resoiling Material | <input type="checkbox"/> Public Road Permit |
| <input type="checkbox"/> Blasting Plans | <input type="checkbox"/> Small Area Drainage Exemption (SADE) |
| <input type="checkbox"/> Buffer Zone Variance Request (BZVR) | <input type="checkbox"/> Steep Slope Mining |
| <input type="checkbox"/> Coal Waste Disposal | <input type="checkbox"/> Slurry Impoundment |
| <input type="checkbox"/> Delay in Contemporaneous Reclamation | <input type="checkbox"/> Test Hole Variance |
| <input type="checkbox"/> Excess Spoil Disposal | <input type="checkbox"/> Variance from AOC |
| <input type="checkbox"/> Experimental Mining Practices | <input type="checkbox"/> Wetlands Affectment/Avoidance |
| <input type="checkbox"/> Federal Lands | <input type="checkbox"/> Within 500' of active UG mine |
| <input type="checkbox"/> Mountain Top Removal | <input checked="" type="checkbox"/> Within 500' of abandoned UG mine |
| <input type="checkbox"/> MSHA Impoundment | <input type="checkbox"/> Within 100' of a cemetery |
| <input type="checkbox"/> AML No-Cost Area | <input type="checkbox"/> Within 300' of occupied dwelling |
| <input type="checkbox"/> Prime Farmlands | <input type="checkbox"/> Within 300' of public building, church, school, community or institutional building or public |
| <input type="checkbox"/> Remining (Reduced Maintenance) | <input type="checkbox"/> Within 1000' of wild, scenic or recreational river |
| <input type="checkbox"/> Remining (Modified effluent) | <input type="checkbox"/> OEPA 401/COE 404 permits needed for wetlands or stream affectment and/or reconstruction |
| <input type="checkbox"/> Remining BMP only Permit | <input type="checkbox"/> Tree Planting in Reclamation Plans |
| <input type="checkbox"/> Special handling of acid-forming/toxic materials. | |

Application Manager: Jeff Emmons, Environmental Specialist

Date: JUN 26 2009



APPROVED UNDERGROUND COAL MINING PERMIT APPLICATION

Applicant:

Name: AMERICAN ENERGY CORP

Address: 43521 Mayhugh Hill Rd.
Twp Hwy 88
Beallsville, OH 43716

Application Number: D-425-10

Number of acres in underground workings: 160.8

Number of surface acres to be affected: 0

The water monitoring plan for this permit shall be:

Quality: ~~See Page 26, F3 of the Permit Application~~

Quantity: ~~See Page 26, F3 of the Permit Application~~

Note: These monitoring requirements are separate from NPDES monitoring requirements.

This application is APPROVED since it demonstrates and the Division has found that the criteria in paragraph (E) of rule 1501: 13-5-01 of the Administrative Code have been met.

Signature: John F. Hunter BH Date: JUN 26 2009

OPERATOR

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

UNDERGROUND COAL MINING AND RECLAMATION
PERMIT APPLICATION

1003000000
10/22/84

1003000000
10/22/84

Applicant's Name American Energy Corporation

A. Type of Operation (check appropriate space(s)):

☐ Shaft, ☐ Slope, ☐ Drift,

☒ Room and Pillar, ☐ Pillar Extraction,

☐ Longwall, ☐ Combined Surface and Underground

B. Type of Application (check appropriate space(s)):

(1) ☐ New

(2) ☐ Initial Underground Workings to Existing Permit

(3) ☒ Additional Underground Workings

C. Address the following if applicable:

(1) Permit Number D-0425

(2) Date Issued 10-22-84

D. Did a person other than an employee of the applicant prepare this application?
Yes, ☒ No ☐ If "yes," provide:

Preparer's Name Jack A. Hamilton & Associates, Inc.

Address P.O. Box 471, 342 High Street

City Flushing State OH Zip 43977

Telephone (740) - 968 - 4947

E. I, the undersigned, a responsible official of the applicant, do hereby verify the information in the complete permit application as true and correct to the best of my information and belief.

Printed Name James R. Turner, Jr. Title Treasurer

Signature [Signature]; Date 4/9/08

Sworn before me and subscribed in my presence this 9th day of April, 2008.

D - 0425 - 10

[Signature]
Notary Public



OPERATOR

Jean M. Snyder
Notary Public, State of Ohio
My Commission Expires 3-27-12

- F. For Revision Review Only. This item is to be completed after revisions, if any, have been made to the permit application.

I, the undersigned, a responsible official of the applicant, do hereby verify and acknowledge the revisions made during the permit review process as true and correct to the best of my information and belief.

Printed Name James R. Turner, Jr.; Title Treasurer

Signature [Signature]; Date 6/25/09

Sworn before me and subscribed in my presence this 25 day of June, 2009.

[Signature]
Notary Public

DENISE B. ZOMBOTTI
NOTARY PUBLIC • STATE OF OHIO
Recorded in Monroe County
My commission expires May 26, 2014

PART 1. LEGAL, FINANCIAL, COMPLIANCE, AND RELATED INFORMATION

A. IDENTIFICATION OF INTERESTS

- (1) Applicant's Name American Energy Corporation

Address 43521 Mayhugh Hill Road, Twp. Hwy. 88

City Beallsville State OH Zip 43716

Telephone (740) -926 - 9152

Employer Identification No. (EIN) 31-1550443, or

Social Security No. (SSN), _____

- (2) Indicate business structure of applicant and additional information:

___ Single proprietorship,

___ Partnership (registration no. and date obtained)

X Corporation (charter no. and date incorporated)

00842695 4-12-1993

___ Association,

___ Other, specify _____

- (3) If the applicant is a single proprietorship, provide the following:

Owner's Name _____

Address _____

City _____ State _____ Zip _____

Telephone _____

EIN _____, or SSN _____

Beginning date of ownership _____

- (4) If the applicant is a business entity other than a single proprietorship, provide the following for the applicant's statutory agent and submit Owners & Controllers.

Agent's Name A & H Statutory Service Corp.

Address 925 Euclid Avenue, Suite 1100

City Cleveland State OH Zip 44115

Telephone 216 - 696 - 7631

EIN 34-104130 or SSN (optional) _____

- (5) Is the operator of the mine to be a person different from the applicant? Yes, X No. If "yes," provide the operator's name and submit Operator Ownership & Control. (Note: if more than one operator, indicate operator's name and submit a separate attachment for each.)

Operator's Name _____

- (6) Provide the following for the person who will pay the abandoned mine land reclamation fee for the applicant.

Name American Energy Corporation

Address 43521 Mayhugh Hill Road, Twp. Hwy. 88

City Beallsville State OH Zip 43716

Telephone (740) - 926 - 9152

EIN 31-1550433, or SSN (optional) _____

- (7) Provide the following for all persons having the authority or ability to commit the financial, real property assets, or working resources of the applicant who are not otherwise identified as officers, directors, or owners of the applicant. If none, check box: [X]. If any person listed is a business entity and not an individual, also complete Owners & Controllers for that person.

Name _____

Address _____

City _____ State _____ Zip _____

Telephone ____ - ____ - _____

EIN _____, or SSN _____

- .. Date O & C relationship began/ended (if applicable)

_____/_____/_____

Submit and identify additional pages necessary to complete response.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **American Energy Corporation**

Name **Murray Energy Corporation**

Street address **43521 Mayhugh Hill Road**

City **Beallsville** State **Ohio** Zip **43716**

EIN **34-1956752**, or SSN **N/A**

Title of position within entity **Sole Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **02-23-01**

Name **Robert E. Murray**

Street address **43521 Mayhugh Hill Road**

City **Beallsville** State **Ohio** Zip **43716**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director, President**

Date position assumed/ended (if applicable) **12-15-04/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael O. McKown**

Street address **43521 Mayhugh Hill Road**

City **Beallsville** State **Ohio** Zip **43716**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **11-1-99/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **American Energy Corporation**

Name **James Turner Jr**

Street address **43521 Mayhugh Hill Road**

City **Beallsville** State **Ohio** Zip **43716**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **03-01-05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert Putsock**

Street address **43521 Mayhugh Hill Road**

City **Beallsville** State **Ohio** Zip **43716**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Treasurer**

Date position assumed/ended (if applicable) **1-27-04/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name

Street address

City State Zip

EIN, or SSN

Title of position within entity

Date position assumed/ended (if applicable)

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Coal Resources Inc.**

Name **Patrick Rundle**

Street address **24 Amhurst Road**

City **Morgantown** State **WV** Zip **26505**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director, President, Shareholder, Vice-President**

Date position assumed/ended (if applicable) **08/09/78/N/A**

Percent of ownership **0** Date of ownership

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Energy Resources, Inc**

Name **Mill Creek Mining Company**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **PA** Zip **15824-0259**

EIN **31-1040986**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **05/25/88**

Name **Stan Piasecki**

Street address **153 Hwy 7 South**

City **Powhatan Point** State **OH** Zip **43947**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Chief Executive Officer, Director, President**

Date position assumed/ended (if applicable) **08/11/04/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael O. Mckown**

Street address **153 Hwy 7 South**

City **Powhatan Point** State **OH** Zip **43947**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Energy Resources, Inc**

Name **Charles Shestak**

Street address **153 Hwy 7 South**

City **Powhatan Point** State **OH** Zip **43947**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Secretary**

Date position assumed/ended (if applicable) **07/16/91/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Elmer Mottillo**

Street address **153 Hwy 7 South**

City **Powhatan Point** State **OH** Zip **43947**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **08/22/03/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name

Street address

City State Zip

EIN, or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **KenAmerican Resources Inc.**

Name **Mill Creek Mining Company**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **PA** Zip **15824-0259**

EIN **34-1040986**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **06/09/94**

Name **Robert E. Murray**

Street address **101 Prosperous Place, Suite 125**

City **Lexington** State **KY** Zip **40509**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **06/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Sidney Young**

Street address **101 Prosperous Place, Suite 125**

City **Lexington** State **KY** Zip **40509**

EIN **N/A**, or SSN **N/A**

Title of position within entity **President**

Date position assumed/ended (if applicable) **12/02/08/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **KenAmerican Resources Inc.**

Name **B. J. Cornelius**

Street address **101 Prosperous Place, Suite 125**

City **Lexington** State **KY** Zip **40509**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Senior Vice President**

Date position assumed/ended (if applicable) **11/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael O. McKown**

Street address **101 Prosperous Place, Suite 125**

City **Lexington** State **KY** Zip **40509**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **02/13/06/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **James Turner, Jr.**

Street address **101 Prosperous Place, Suite 125**

City **Lexington** State **KY** Zip **40509**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **KenAmerican Resources Inc.**

Name **Robert D. Moore**

Street address **101 Prosperous Place, Suite 125**

City **Lexington** State **KY** Zip **40509**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Treasurer**

Date position assumed/ended (if applicable) **06/25/01/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert Sandidge**

Street address **101 Prosperous Place, Suite 125**

City **Lexington** State **KY** Zip **40509**

EIN **N/A**, or SSN **N/A**

Title of position within entity **President, Manager**

Date position assumed/ended (if applicable) **12/16/06/12/08/08**

Percent of ownership **0** Date of ownership **N/A**

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) **/**

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Mill Creek Mining Company**

Name **Coal Resources, Inc**

Street address **24 Amhurst Road**

City **Morgantown** State **WV** Zip **26505**

EIN **34-1586390**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **05/25/88**

Name **Robert E. Murray**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **PA** Zip **15824-0259**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **05/14/04/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Charles Shestak**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **PA** Zip **15824-0259**

EIN **N/A**, or SSN **N/A**

Title of position within entity **President**

Date position assumed/ended (if applicable) **08/18/98/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Mill Creek Mining Company**

Name **Michael O. McKown**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **PA** Zip **15824-0259**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **James Turner Jr.**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **PA** Zip **15824-0259**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert Putsock**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **PA** Zip **15824-0259**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Secretary, Assistant Treasurer**

Date position assumed/ended (if applicable) **06/25/01/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Mill Creek Mining Company**

Name **Robert D. Moore**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **PA** Zip **15824-0259**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Treasurer**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **[REDACTED]**

Street address **[REDACTED]**

City **[REDACTED]** State **[REDACTED]** Zip **[REDACTED]**

EIN **[REDACTED]**, or SSN **[REDACTED]**

Title of position within entity **[REDACTED]**

Date position assumed/ended (if applicable) **[REDACTED] / [REDACTED]**

Percent of ownership **[REDACTED]** Date of ownership **[REDACTED]**

Name **[REDACTED]**

Street address **[REDACTED]**

City **[REDACTED]** State **[REDACTED]** Zip **[REDACTED]**

EIN **[REDACTED]**, or SSN **[REDACTED]**

Title of position within entity **[REDACTED]**

Date position assumed/ended (if applicable) **[REDACTED] / [REDACTED]**

Percent of ownership **[REDACTED]** Date of ownership **[REDACTED]**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Corporation**

Name **Murray Energy Holdings Co.**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **20-0100463**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **10/21/03**

Name **Robert E. Murray**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Chairman, Director, President & CEO**

Date position assumed/ended (if applicable) **02/23/01/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael D. Loiacono**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **02/23/01/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Corporation**

Name **Richard L. Lawson**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **01/28/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Andrew D. Weissman**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **10/23/03/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Henry W. Fayne**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **01/28/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

May 3, 2007

Mr. Robert E. Murray
Director
Murray Energy Corporation
29325 Chagrin Boulevard, Suite 300
Pepper Pike, Ohio 44122

Dear Mr. Murray:

I hereby resign from my position as Vice President of Murray Energy Corporation effective the date above written.

Sincerely,

A handwritten signature in cursive script that reads "P. Bruce Hill".

P. Bruce Hill

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Corporation**

Name **Robert D. Moore**

Street address **43521 Mayhugh Hill Road**

City **Beallsville** State **Oh** Zip **43716**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Vice President/Director/CFO**

Date position assumed/ended (if applicable) **12/17/04 VP 4/23/07 Director & CFO/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **P. Bruce Hill**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Vice President/Human Resources**

Date position assumed/ended (if applicable) **12/18/03/05/03/07**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael O. McKown**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **02/23/01/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Holdings Co.**

Name **Robert D. Moore**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **President, Director, & CEO**

Date position assumed/ended (if applicable) **04/23/07/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert E. Murray**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director & Shareholder**

Date position assumed/ended (if applicable) **06/30/03/N/A**

Percent of ownership **40** Date of ownership **N/A**

Name **Michael D. Loiacono**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **01/10/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Holdings Co**

Name **Michael O. McKown**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary & Director**

Date position assumed/ended (if applicable) **06/30/03/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert E. Murray**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **6/30/03/N/A**

Percent of ownership **20** Date of ownership **N/A**

Name **Ryan M. Murray**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **6/30/03/N/A**

Percent of ownership **20** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Holdings Co.**

Name **Jonathan R. Murray**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **6/30/03/N/A**

Percent of ownership **20** Date of ownership **6/30/03**

Name **Fifth Third Bank of Northeast Ohio**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **20-0100463**, or SSN **N/A**

Title of position within entity **Trustee**

Date position assumed/ended (if applicable) **4-23-07**

Percent of ownership **No equity greater than 10 %** Date of ownership **4-23-07**

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable)

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Mill Creek Mining Co.**

Name **Paul Napier**

Street address **Star Rt. 3 Box 61**

City **Straight Creek** State **KY** Zip **40989**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Partner**

Date position assumed/ended (if applicable) **07/21/82/N/A**

Percent of ownership **0** Date of ownership

Name **Earl Miller**

Street address **Star Rt. 3 Box 61**

City **Straight Creek** State **KY** Zip **40989**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Partner**

Date position assumed/ended (if applicable) **07/21/82/N/A**

Percent of ownership **0** Date of ownership

Name **Donnie Miller**

Street address **Star Rt. 3 Box 61**

City **Straight Creek** State **KY** Zip **40989**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Partner**

Date position assumed/ended (if applicable) **07/21/82/N/A**

Percent of ownership **0** Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Mill Creek Mining Co.**

Name **W. Lundy**

Street address **Star Rt. 3 Box 61**

City **Straight Creek** State **KY** Zip **40989**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Partner**

Date position assumed/ended (if applicable) **10/19/82/N/A**

Percent of ownership **0** Date of ownership

Name **Charles Miller**

Street address **Star Rt. 3 Box 61**

City **Straight Creek** State **KY** Zip **40989**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Partner**

Date position assumed/ended (if applicable) **07/21/82/N/A**

Percent of ownership **0** Date of ownership

Name **Roy Saunders**

Street address **Star Rt. 3 Box 61**

City **Straight Creek** State **KY** Zip **40989**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Partner**

Date position assumed/ended (if applicable) **07/21/82/N/A**

Percent of ownership **0** Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Mon-Valley Transportation Center Inc.**

Name **Pennsylvania Transloading Inc**

Street address **29325 Chagrin Boulevard Suite 300**

City **Pepper Pike** State **OH** Zip **44122-4600**

EIN **34-1603748**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **08/28/95**

Name **Paul Piccolini**

Street address **1 Industrial Park Drive**

City **Wheeling** State **WV** Zip **26003**

EIN **N/A**, or SSN **N/A**

Title of position within entity **President**

Date position assumed/ended (if applicable) **04/28/06/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **James Turner, Jr.**

Street address **1 Industrial Park Drive**

City **Wheeling** State **WV** Zip **26003**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer, Secretary**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Mon-Valley Transportation Center Inc.**

Name **Michael D. Loiacono**

Street address **1 Industrial Park Drive**

City **Wheeling** State **WV** Zip **26003**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **11/01/99/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert E. Murray**

Street address **1 Industrial Park Drive**

City **Wheeling** State **WV** Zip **26003**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **08/28/95/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **OhioAmerican Energy Incorporated**

Name **Murray Energy Corporation**

Street address **29325 Chagrin Blvd., Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **34-1956752**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **05/01/05**

Name **Robert E. Murray**

Street address **29325 Chagrin Blvd., Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **05/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Stan Piasecki**

Street address **29325 Chagrin Blvd., Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Vice President**

Date position assumed/ended (if applicable) **12/05/07/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Ohio American Energy Incorporated**

Name **Michael O. McKown**

Street address **29325 Chagrin Blvd., Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **05/02/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert E. Murray**

Street address **29325 Chagrin Blvd., Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **05/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert D. Moore**

Street address **29325 Chagrin Blvd., Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **05/02/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Ohio American Energy Incorporated**

Name **Elmer Mottillo**

Street address **29325 Chagrin Blvd., Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Treasurer**

Date position assumed/ended (if applicable) **06/30/06/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Mark Nelson**

Street address **29325 Chagrin Blvd., Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Vice President**

Date position assumed/ended (if applicable) **12/05/07/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) **/**

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Ohio Valley Resources, Inc**

Name **Robert E. Murray**

Street address **29325 Chagrin Boulevard Suite 111**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **11/01/99/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Paul Piccolini**

Street address **29325 Chagrin Boulevard Suite 111**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **President**

Date position assumed/ended (if applicable) **04/28/06/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Ronnie Dietz**

Street address **29325 Chagrin Boulevard Suite 111**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary, Comptroller, Treasurer**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Ohio Valley Resources, Inc.**

Name **Murray Energy Corporation**

Street address **29325 Chagrin Boulevard Suite 111**

City **Pepper Pike** State **OH** Zip **44122**

EIN **34-1956752**, or SSN **N/A**

Title of position within entity **Owner**

Date position assumed/ended (if applicable) **N/A/N/A**

Percent of ownership **100** Date of ownership **06/01/01**

Name [REDACTED]

Street address [REDACTED]

City [REDACTED] State [REDACTED] Zip [REDACTED]

EIN [REDACTED], or SSN [REDACTED]

Title of position within entity [REDACTED]

Date position assumed/ended (if applicable) [REDACTED] / [REDACTED]

Percent of ownership [REDACTED] Date of ownership [REDACTED]

Name [REDACTED]

Street address [REDACTED]

City [REDACTED] State [REDACTED] Zip [REDACTED]

EIN [REDACTED], or SSN [REDACTED]

Title of position within entity [REDACTED]

Date position assumed/ended (if applicable) [REDACTED] / [REDACTED]

Percent of ownership [REDACTED] Date of ownership [REDACTED]

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Pennsylvania Transloading, Inc**

Name **Sunburst Resources, Inc**

Street address **586 National Road**

City **Wheeling** State **WV** Zip **26003**

EIN **25-1766427**, or SSN **N/A**

Title of position within entity **Owner**

Date position assumed/ended (if applicable) **N/A/N/A**

Percent of ownership **100** Date of ownership **04/01/1996**

Name **Robert E. Murray**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **11/18/88/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Paul Piccolini**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **01/10/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Pennsylvania Transloading, Inc**

Name **Michael O. Mckown**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **03/01/05**

Name **James Turner Jr.**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **[REDACTED]**

Street address **[REDACTED]**

City **[REDACTED]** State **[REDACTED]** Zip **[REDACTED]**

EIN **[REDACTED]**, or SSN **[REDACTED]**

Title of position within entity **[REDACTED]**

Date position assumed/ended (if applicable) **[REDACTED]/[REDACTED]**

Percent of ownership **[REDACTED]** Date of ownership **[REDACTED]**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Sunburst Resources Inc**

Name **Pennsylvania Transloading Inc**

Street address **29325 Chargrin Boulevard Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **34-1603748**, or SSN **N/A**

Title of position within entity **Owner**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **04/01/1996**

Name **Robert Murray**

Street address **29525 Chargrin Boulevard Suite 111**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **1/11/1995/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Paul Piccolini**

Street address **29525 Chargrin Boulevard Suite 111**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **President**

Date position assumed/ended (if applicable) **4/28/2006/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Sunburst Resources Inc**

Name **Ronnie Deitz**

Street address **29525 Chargin Boulevard Suite 111**

City **Pepper Pike** State **OH** Zip **44122**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **3/01/2005/**

Percent of ownership **0** Date of ownership **N/A**

Name

Street address

City State Zip

EIN, or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Name

Street address

City State Zip

EIN, or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **TDK Coal Sales, Inc.**

Name **Energy Resources Inc.**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **Pa** Zip **15824**

EIN **31-1044044**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **02/01/99**

Name **Stan Piasecki**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **Pa** Zip **15824**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director, President & CEO**

Date position assumed/ended (if applicable) **08/11/04/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael O. McKown**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **Pa** Zip **15824**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **TDK Coal Sales, Inc.**

Name **Charles Shestak**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **Pa** Zip **15824**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Secretary**

Date position assumed/ended (if applicable) **02/01/99/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Elmer Mottillo**

Street address **P.O. Box 259 Rd 2 Fermantown Road**

City **Brockway** State **Pa** Zip **15824**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **08/22/03/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name

Street address

City State Zip

EIN, or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **The Ohio Valley Coal Company**

Name **Ohio Valley Resources Inc.**

Street address **29325 Chagrin Boulevard Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **34-1586391**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **05/25/88**

Name **Robert E. Murray**

Street address **56854 Pleasant Ridge Road**

City **Alledonia** State **OH** Zip **43902**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **03/10/95/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Paul Piccolini**

Street address **56854 Pleasant Ridge Road**

City **Alledonia** State **OH** Zip **43902**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Vice President**

Date position assumed/ended (if applicable) **01/01/07/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **The Ohio Valley Coal Company**

Name **Ronnie Dietz**

Street address **56854 Pleasant Ridge Road**

City **Alledonia** State **OH** Zip **43902**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer, Assistant Secretary, Comptroller**

Date position assumed/ended (if applicable) **03/01/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Roberta Heil**

Street address **56854 Pleasant Ridge Road**

City **Alledonia** State **OH** Zip **43902**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Secretary**

Date position assumed/ended (if applicable) **11/01/99/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Bonnie Froehlich**

Street address **56854 Pleasant Ridge Road**

City **Alledonia** State **OH** Zip **43902**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Assistant Secretary/Assistant Treasurer**

Date position assumed/ended (if applicable) **06/25/01/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Utah American Energy, Inc.**

Name **Murray Energy Corporation**

Street address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN **20-0100463**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A**

Percent of ownership **100** Date of ownership **01/01/1901**

Name **P. Bruce Hill**

Street address **6750 N Airport Rd**

City **Price** State **Utah** Zip **84501**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Chief Executive Officer & Director, President**

Date position assumed/ended (if applicable) **8/18/06, 12/16/06/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael O. McKown**

Street address **6750 N Airport Rd**

City **Price** State **Utah** Zip **84501**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **12/16/06/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **American Energy Corporation**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Utah American Energy, Inc**

Name **Robert D. Moore**

Street address **6750 N Airport Rd**

City **Price** State **Utah** Zip **84501**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **12/16/06/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert E. Murray**

Street address **6750 N Airport Rd**

City **Price** State **Utah** Zip **84501**

EIN **N/A**, or SSN **N/A**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **8/18/06/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name

Street address

City State Zip

EIN, or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

- (8) Provide the following for all persons owning or controlling the coal to be mined by another person under a lease, sublease, or other contract and (a) having the right to receive the coal after mining, or (b) having the authority to determine the manner in which another person conducts coal mining operations. If none, check box: [☒]. If any person listed is a business entity and not an individual, also complete Owners & Controllers for that person.

Name _____

Address _____

City _____ State _____ Zip _____

Telephone ____ - ____ - _____

EIN _____, or SSN _____

O & C relationship to entity _____

Date O & C relationship began/ended (if applicable) _____

Submit and identify additional pages necessary to complete response.

- (9) List below the person or persons primarily responsible for ensuring that the applicant will comply with Chapter 1513. of the Revised Code and the rules adopted pursuant thereto while mining and reclaiming the area for which this permit is requested.

James R. Turner, Jr.

- (10) Has the applicant, any person listed under items A(3), (7), and (8), or any person listed on Owners and Controllers who "owned or controlled" or "owns or controls" as defined in 1501:13-4-03(A), held a coal mining permit in the United States within the five years preceding the date of the application? ☒ Yes, ☐ No. If "yes," submit Permit List.

- (11) Does the applicant, any person listed under items A(3), (7), and (8), or any person listed on Owners & Controllers have a pending coal mining application in any state of the United States? ☒ Yes, ☐ No. If "yes," submit Pending Application List.

- (12) Indicate name of mine **Century Mine**

- (13) List below the MSHA identification numbers for the mine and for all mine-associated structures requiring MSHA approval on the proposed permit area.

33-01070

- (14) Submit Certificate of Insurance.

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **Andalex Resources Management, Inc.**
Address **P.O. Box 902, 6750 N. Airport Rd.**
City **Price** State **UT** Zip **84501**
Telephone **435-637-5385**
EIN **61-0731325** or SSN **-**

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
C/007/019	UT	DOGM	42-02028/4-1-89 42-01474/7-1-78
C/007/033	UT	DOGM	42-01864/2-1-84

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **American Energy Corporation**
Address **43521 Mayhugh Hill Road, Twp Highway 88**
City **Beallsville** State **OH** Zip **43716**
Telephone **740-926-9152**
EIN **31-1550443** or SSN **N/A**

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-0425	OH	DMRM	33-01070/10-22-1984
D-1159	OH	DMRM	33-02122/01-26-1998

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, Shareholder 100%

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **Belmont Coal, Inc.**
Address **P. O. Box 146**
City **Powhatan Point** State **OH** Zip **43942**
Telephone **714-795-5200**
EIN **31-1536602** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-1020	OH	DMRM	33-04397/7-31-1997
D-0241	OH	DMRM	33-03048/7/2/1993

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray , shareholder 100%

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **Maple Creek Mining Company**

Address **981 Route 917**

City **Bentleville** State **PA** Zip **15314**

Telephone **724-258-2056**

EIN **25-1755305** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
63841302	PA	DEP	36-00970/6-30-1995
63733706	PA	DEP	36-00970/6-30-1995
63723707	PA	DEP	36-00970/6-30-1995

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, Director

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **Energy Resources, Inc.**

Address **PO Box 259**

City **Brockway** State **PA** Zip **15824**

Telephone **814-865-8021**

EIN **31-1044044** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
24030102	PA	DEP	36-02695/05-25-1988
33901602	PA	DEP	36-02695/05-25-1988
17930120	PA	DEP	36-02695/05-25-1988
24880101	PA	DEP	36-02695/05-25-1988
24880103	PA	DEP	36-02695/05-25-1988
24890101	PA	DEP	36-02695/05-25-1988
24890102	PA	DEP	36-02695/05-25-1988
24990101	PA	DEP	36-02695/05-25-1988
24970101	PA	DEP	36-02695/05-25-1988
24980101	PA	DEP	36-02695/05-25-1988

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray , shareholder 100%

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **Energy Resources, Inc.**
Address **PO Box 259**
City **Brockway State PA** Zip **15824**
Telephone **814-265-8021**
EIN **31-1044044** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
24010101	PA	DEP	36-02695/05-25-88
24900104	PA	DEP	36-02695/05-25-88
24900103	PA	DEP	36-02695/05-25-88
24960101	PA	DEP	36-02695/05-25-88
24970102	PA	DEP	36-02695/05-25-88
24970103	PA	DEP	36-02695/05-25-88
17823701	PA	DEP	36-02695/05-25-88
17841607	PA	DEP	36-02695/05-25-88

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **Mon-Valley Transportation Center, Inc.**

Address **PO Box 135 1060 Ohio Ave**

City **Glassport** State **OH** Zip **15045**

Telephone **412-673-1500**

EIN **15-1490495** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
2851602	PA	DEP	36-08678/6-8-1995

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, Director

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **OHIOAMERICAN ENERGY, INCORPORATED**
Address **29325 Chagrin Blvd., Suite 300**
City **Pepper Pike** State **OH** Zip **44122**
Telephone **216-765-1240**
EIN **20-3044610** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-2180	OH	DMRM	33-04387
D-2291	OH	DMRM	33-04550
D-2304	OH	DMRM	33-04550
D-2312	OH	DMRM	33-04550

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **PENNAMERICAN COAL, LP**
Address **PO Box 459**
City **Black Lick** State **PA** Zip **15716-0459**
Telephone **724-248-1327**
EIN **25-1800870** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
32951301	PA	DEP	36-08525

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, SHAREHOLDER

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **TDK Coal Sales**

Address **PO Box 259**

City **Brockway** State **PA** Zip **15824**

Telephone **814-865-8021**

EIN **25-1422374** or SSN **XXXX-XX-XXXX**

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
03960103	PA	DEP	36-07707/1-14-97
03940101	PA	DEP	36-07707/6-6-95
16910104	PA	DEP	36-07707/5-11-92
33960109	PA	DEP	36-07707/3-03-98
16980102	PA	DEP	36-07707/9-10-98
24970104	PA	DEP	36-08867/9-10-98
03950106	PA	DEP	36-07707/11-9-95
03950701	PA	DEP	36-00813/6-5-96 36-05708/9-2-99
10900109	PA	DEP	36-07707/9-16-91
10930105	PA	DEP	36-07707/12-27-93

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **TDK Coal Sales**

Address **PO Box 259**

City **Brockway** State **PA** Zip **15824**

Telephone **814-865-8021**

EIN **25-1422374** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
16900109	PA	DEP	36-07707/10-2-90
17814000	PA	DEP	36-08867/3-1-84
17840126	PA	DEP	36-08867/11-22-85
17900108	PA	DEP	36-08867/5-21-90
17900143	PA	DEP	36-08867/2-13-92
17910124	PA	DEP	36-08867/9-9-92
17960119	PA	DEP	36-08867/2-25-97

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **The American Coal Company**

Address **29325 Chagrin Blvd**

City **Pepper Pike** State **OH** Zip **44122**

Telephone **216-765-1240**

EIN **73-1546124** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
02	IL	OFFICE OF MINES AND MINERALS	11-02752/10-14-98
255	IL	OFFICE OF MINES AND MINERALS	11-02752/10-14-98
257	IL	OFFICE OF MINES AND MINERALS	11-02752/10-14-98
306	IL	OFFICE OF MINES AND MINERALS	11-02752/10-14-98
352	IL	OFFICE OF MINES AND MINERALS	11-02752/10-14-98
1410	IL	OFFICE OF MINES AND MINERALS	11-02752/10-14-98
344	IL	OFFICE OF MINES AND MINERALS	11-02752/10-14-98

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, President

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **The Ohio Valley Coal Company**
Address **56854 Pleasant Ridge Road**
City **Alledonia** State **OH** Zip **43902**
Telephone **740-926-1351**
EIN **34-1041610** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-0360	OH	DMRM	33-01159/5-27-1988

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **The Oklahoma Coal Company**

Address **29325 Chagrin Blvd**

City **Pepper Pike** State **OH** Zip **44122**

Telephone **216-765-1240**

EIN **34-1673480** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-0230	OH	DMRM	n/a

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **UMCO Energy Inc.**
Address **981 Route 917**
City **Bentleville** State **PA** Zip **15314**
Telephone **724-258-2056**
EIN **52-1615668** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
63921301	PA	DEP	36-08375/6-8-1994

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, Director

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **UtahAmerican Energy, Inc**
Address **375 S. Carbon Ave Suite 127**
City **Price** State **UT** Zip **84501**
Telephone **435-888-4000**
EIN **34-1874726** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
ACT 007/013	UT	DOGM	42-00100/12-10-1984
ACT 007/013	UT	DOGM	42-02241/2-24-1999
ACT 007/019	UT	DOGM	42-02028/4-1-1989
ACT 007/041	UT	DOGM	42-02233/3-1-1999
ACT 015-032	UT	DOGM	42-01715/11/22/1983

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PERMIT LIST

Applicant's Name **American Energy Corporation**

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity **Kenamerican Resources Inc**
Address **101 Prosperous Place, Suite 125**
City **Lexington** State **KY** Zip **40509**
Telephone **859-543-9220**
EIN **61-1264385** or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
8895009	KY	DSMRE	1517741/10-17-94 1517606/10-17-94
8895011	KY	DSMRE	1518495/10-16-00
8899004	KY	DSMRE	112234/7-16-04

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PENDING APPLICATION LIST

Applicant's Name **American Energy Corporation**

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed
Belmont Coal, Inc.

Application No.	Name of Regulatory Authority	State
10168	DMRM	OH

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name **American Energy Corporation**

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed
Energy Resources, Inc.

Application No.	Name of Regulatory Authority	State
33-02-07	DEP	PA

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

PENDING APPLICATION LIST

Applicant's Name **American Energy Corporation**

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed
THE OHIO VALLEY COAL COMPANY

Application No.	Name of Regulatory Authority	State
D-0360-14	DMRM	OHIO
D-0360-15	DMRM	OHIO
D-0360-18	DMRM	OHIO
D-0360-19	DMRM	OHIO

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name **American Energy Corporation**

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed
Andalex Resources Inc.

Application No.	Name of Regulatory Authority	State
PR0025002	DOGM	UTAH

Part 1: Section A

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name **American Energy Corporation**

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed
American Energy Corporation

Application No.	Name of Regulatory Authority	State
D-0425-7	DMRM	OH
D-0425-8	DMRM	OH

Part 1: Section A

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

CERTIFICATE OF INSURANCE

Name of Insured **American Energy Corporation**

This is to certify that the policy of insurance listed below has been issued to the above named insured and is in force at this time. The policy provides bodily injury and property damage insurance for all coal mining and reclamation operations of the insured in the state of Ohio as required by 1501:13-7-07 of the Administrative Code stated below.

Name of Insurer **Federal Insurance Company**

Policy Number **37104410**

Policy Period **6/1/09-6/1/2010**

Name of Underwriting Agent **Reschini Agency, Inc.**

Address of Underwriting Agent **922 Philadelphia ST.
Indiana, PA 15701**

Telephone No. of Underwriting Agent **800 828 5040**

In the event of cancellation or non-renewal of this policy, including non-payment of policy premiums, the insurer agrees to promptly notify: The Division of Mineral Resources Management, 2045 Morse Road, Building H-3, Columbus, Ohio 43229-6693.

6/26/09
Date

K. Williams
Signature of Underwriting Agent

This certificate is issued as a matter of information only and confers no rights upon the Division of Mineral Resources Management. This certificate does not amend, extend or alter the coverage afforded by the policy listed above.

1501:13-7-07(B) THE PUBLIC LIABILITY INSURANCE POLICY SHALL:

- (1) BE IN EFFECT DURING THE TERM OF THE PERMIT OR ANY RENEWAL, INCLUDING THE LENGTH OF ALL RECLAMATION OPERATIONS;
- (2) PROVIDE FOR PERSONAL INJURY AND PROPERTY DAMAGE PROTECTION IN AMOUNTS ADEQUATE TO COMPENSATE ANY PERSONS INJURED OR PROPERTY DAMAGED AS A RESULT OF COAL MINING AND RECLAMATION OPERATIONS, INCLUDING THE USE OF EXPLOSIVES. THE MINIMUM INSURANCE COVERAGE FOR BODILY INJURY AND PROPERTY DAMAGE SHALL BE THREE HUNDRED THOUSAND DOLLARS FOR EACH OCCURRENCE AND FIVE HUNDRED THOUSAND DOLLARS IN THE AGGREGATE; AND
- (3) INCLUDE A RIDER REQUIRING THAT THE INSURER NOTIFY THE CHIEF WHENEVER SUBSTANTIVE CHANGES ARE MADE IN THE POLICY, INCLUDING ANY TERMINATION OR FAILURE TO RENEW.

Part 1: Section A

B. COMPLIANCE INFORMATION

- (1) Has the applicant, any subsidiary, affiliate, or persons controlled by or under common control with the applicant:
 - (a) Had a federal or state coal mining permit suspended or revoked in the five years preceding the date of submission of this application?
___ Yes X No. If "yes," submit Suspension, Revocation & Forfeiture List.
 - (b) Forfeited a mining bond or similar security deposited in lieu of bond?
___ Yes, X No. If "yes," submit Suspension, Revocation & Forfeiture List.
- (2) Has the applicant been issued a notice of violation (NOV) in connection with any coal mining and reclamation operation during the three years preceding the date of submission of this application for violations of Chapter 1513. of the Revised Code or these rules, or of any federal or state law, rule, or regulation pertaining to air or water environmental protection? X Yes, ___ No. If "yes," submit NOV List.
- (3) Have any unabated federal or state cessation orders (COs) and unabated air and water quality notices of violations (NOVs) been received prior to the submission date of this application by any coal mining and reclamation operation owned or controlled by either the applicant or by any person who owns or controls the applicant? ___ Yes, X No. If "yes," submit Unabated Violations.

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

NOV LIST

Applicant's Name American Energy Corporation

Permit Number	Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of NOV	Action Taken to Abate NOV	Current Status of NOV (*)
D-0425	21807	1-25-05	ODNR	OH	W-401 Water Buffalo is out of water at the Neal Moore dairy farm site.	Restored W-401 water buffalo by filling with water.	Terminated 1/25/05 9:00 P.M.
D-0425	19695	4-27-05	ODNR	OH	Operator failed to maintain Pond 008-A and sump (next to 018-A).	Reconstruct embankment to pond 008-A and sump.	Terminated 6/10/05
D-0425	19696	4-27-05	ODNR	OH	Coal has come off and accumulated downslope of the raw stockpile increasing PH and Iron levels in Pond 008-A.	Remove all coal that has accumulated downslope of the raw stockpile.	Terminated 6/10/05
D-0425	19697	4-27-05	ODNR	OH	Failure to maintain haul road/access road between pond 011 and 008 series pond.	Construct sumps to control drainage coming off roadway.	Terminated 6/10/05
D-0425	1-11726	8-23-05	ODNR	OH	Uncontrolled discharge.	Isolate and clean spill.	Terminated 6/30/05
D-0425	21871	10-3-05	ODNR	OH	Failure to submit site specific plans and time schedule for repair or mitigation for the Moore farm.	Came to an agreement with land owner on remedial actions.	Terminated 8/2/06
D-1159	21860	9-15-06	ODNR	OH	Failure to segregate and stockpile prime farmland soils prior to disturbance.	Segregate stockpile and protect prime farmland soil necessary for PFL restoration.	Terminated 12/31/06
D-0425	28434	6-27-07	ODNR	OH	Failure to provide written notice to surface owner at least six months prior to undermining.	Non-remedial.	Non-remedial.

C. RIGHT OF ENTRY INFORMATION

- (1)(a) Provide the following information for every legal or equitable owner of record, surface and mineral, of the property to be mined on the permit area (i.e. areas affected by surface operations and facilities), indicating whether the ownership is of surface, coal or non-coal mineral. **N/A**

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Non-coal Mineral _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Non-coal Mineral _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Non-coal Mineral _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Non-coal Mineral _____

Deed Parcel No. _____

C.(1)(b)

Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether ownership is for the surface or coal. **See addendum to Part 1, Page 7, Item C(1)(b)**

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Non-coal Mineral _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Non-coal Mineral _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Non-coal Mineral _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Non-coal Mineral _____

Deed Parcel No. _____

American Energy Corporation
Addendum to Part 1, Page 7, Item C(1)(b)

Name John E. & Norma J. Diver
Address 9700 Berlin Sta. Rd.
City Canfield State Ohio Zip 44406
Surface X , Coal _____
Deed Parcel No. 2-13-165, Parcel 2

Name Ronald R., Sr. & Sara Reger
Address 457 West 45th Street
City Shadyside State Ohio Zip 43947
Surface X , Coal _____
Deed Parcel No. 2-13-10, 2-13-11, 2-13-12, Parcel 3

Name Roy R. & Mary M. Miller
Address 9650 Dover Road
City Applecreek State Ohio Zip 44606
Surface X , Coal _____
Deed Parcel No. 2-8-2, Parcel 13 (Tract 2)

Name North American Coal Royalty Company
Address 14785 Preston Road, Suite 1100
City Dallas State Texas Zip 75254-7891
Surface _____ , Coal X
Deed Parcel No. Parcel 2, Parcel 3, Parcel 5, Parcel 13 (Tract 2)

American Energy Corporation
Addendum to Part 1, Page 7, Item C(1)(b)

Name **Consolidated Land Company**
Address **29325 Chagrin Boulevard, Suite 300**
City **Pepper Pike** State **Ohio** Zip **44122**
Surface _____, Coal **X**
Deed Parcel No. **2-8-2, 2-13-3, 2-13-10, 2-13-11, 2-13-12, 2-13-170,**
2-13-175, 2-13-176

Name **John Christman**
Address **121 North Paul Street**
City **Woodsfield** State **Ohio** Zip **43793**
Surface **X**, Coal _____
Deed Parcel No. **Parcel 5**

Name **Carol A. Baker**
Address **55341 Pugh Ridge Road**
City **Alledonia** State **Ohio** Zip **43902**
Surface **X**, Coal _____
Deed Parcel No. **2-13-3**

Name **Jason M. May**
Address **54081 Pugh Ridge Road**
City **Alledonia** State **Ohio** Zip **43902**
Surface **X**, Coal _____
Deed Parcel No. **2-13-170**

Name **Paula & Gary Moore**
Address **1734 Forest Hills Circle**
City **Zanesville** State **Ohio** Zip **43701**
Surface **X**, Coal _____
Deed Parcel No. **2-13-170, 2-13-175**

American Energy Corporation
Addendum to Part 1, Page 7, Item C(1)(b)

Name **Charles F. Orum**
Address **99 E. Court Street**
City **Zanesville** State **Ohio** Zip **43793**
Surface **X** , Coal _____
Deed Parcel No. **2-13-175, 2-13-176**

- C. (2) Provide the following information for the holders of record of any leasehold interest in the coal to be mined or property to be affected by surface operations or facilities, indicating whether the held interest is of surface, coal or non-coal rights.

Name Consolidated Land Company

Address 29325 Chagrin Boulevard, Suite 300

City Pepper Pike State Ohio Zip 44122

Surface , Coal X, Non-coal Mineral

Name American Energy Corporation

Address 43521 Mayhugh Hill Road

City Beallsville State Ohio Zip 43716

Surface , Coal X, Non-coal Mineral

Submit and identify additional pages necessary to complete response.

- (3) Are there purchasers of record under a real estate contract of the coal to be mined or property to be affected by surface operations and facilities?
X Yes, No. If "yes," submit Purchasers of Record.
- (4) Is any owner, holder, or purchaser listed in items C(1) (a and b), (2), or (3) respectively, a business entity other than a single proprietorship?
X Yes, No. If "yes," submit Other Business Entities.
- (5) Is any part of the proposed permit area adjacent to any lands which are not owned by those persons identified in item C(1)(a)? Yes, X No. If "yes," submit Adjacent Owners.
- (6) Does the applicant hold lands, interests in lands, options, or pending bids on interests for lands that are contiguous to the property to be mined?
X Yes, No. If "yes," provide a description of the lands.
See addendum to Part 1, Page 8, Item C(7) Future Application Areas and Sequence Map
- (7) Is it anticipated that individual mining permits will be sought for any of those lands described in item C(6) above? X Yes, No. If "yes," submit as an addendum and identify those lands to include the size, sequence, and timing of future mining permits, utilizing a map pursuant to 1501:13-4-13(J)(29), Ohio Administrative Code.
See addendum to Part 1, Page 8, Item C(7) Future Application Areas and Sequence Map

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PURCHASERS OF RECORD

Applicant's Name American Energy Corporation

Name of purchaser North American Coal Royalty Company

Address 14785 Preston Road, Suite 1100

City Dallas State Texas Zip 75254-7891

Name of purchaser

Address

City State Zip

Name of purchaser

Address

City State Zip

Name of purchaser

Address

City State Zip

Name of purchaser

Address

City State Zip

Name of purchaser

Address

City State Zip

Part 1: Section C

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OTHER BUSINESS ENTITIES

Applicant's Name **American Energy Corporation**

A separate attachment is to be submitted for each business entity.

Name of business entity **American Energy Corporation**

Statutory agent **A & H Statutory Service Corp.**

Street Address **925 Euclid Avenue, Suite 1100**

City **Cleveland** State **OH** Zip **44115**

Person's name **Robert E. Murray** Position **Director/President**

Street Address **43521 Mayhugh Hill Road**

City **Beallsville** State **OH** Zip **43716**

Person's name **Michael O. McKown** Position **Secretary**

Street Address **43521 Mayhugh Hill Road**

City **Beallsville** State **OH** Zip **43716**

Person's name **James R. Turner, Jr.** Position **Treasurer**

Street Address **43521 Mayhugh Hill Road**

City **Beallsville** State **OH** Zip **43716**

Person's name **Robert L. Putsock** Position **Assistant Treasurer**

Street Address **43521 Mayhugh Hill Road**

City **Beallsville** State **OH** Zip **43716**

Part 1: Section C

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

OTHER BUSINESS ENTITIES

Applicant's Name **American Energy Corporation**

A separate attachment is to be submitted for each business entity.

Name of business entity **Consolidated Land Company**

Statutory agent **Stephen C. Ellis #842696**

Street Address **925 Euclid Avenue, Suite 1100**

City **Cleveland** State **Ohio** Zip **44115**

Person's name **Robert D. Moore** Position **Director, President, Treasurer, & Assistant Secretary**

Street Address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Ohio** Zip **44122**

Person's name **Michael O. McKown** Position **Secretary**

Street Address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Ohio** Zip **44122**

Person's name **Elmer A. Mottillo** Position **Assistant Secretary**

Street Address **29325 Chagrin Boulevard, Suite 300**

City **Pepper Pike** State **Ohio** Zip **44122**

Person's name Position

Street Address

City State Zip

Part 1: Section C

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OTHER BUSINESS ENTITIES

Applicant's Name **American Energy Corporation**

A separate attachment is to be submitted for each business entity.

Name of business entity **North American Coal Royalty Company**

Statutory agent **CSC Lawyers Inc Service (Corporation Service Company)**

Street Address **50 West Broad Street Suite 1800**

City **Columbus** State **Ohio** Zip **43215**

Person's name **Thomas Koza** Position **Director**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **Thomas Koza** Position **Vice President**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **Thomas Koza** Position **Secretary**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **Robert Benson** Position **Director**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Part 1: Section C

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OTHER BUSINESS ENTITIES

Applicant's Name **American Energy Corporation**

A separate attachment is to be submitted for each business entity.

Name of business entity **North American Coal Royalty Company**

Statutory agent [REDACTED]

Street Address [REDACTED]

City [REDACTED] State [REDACTED] Zip [REDACTED]

Person's name **Andrew Good** Position **Secretary**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **Dan Swetich** Position **Director**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **James Melchior** Position **Director**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **James Melchior** Position **Vice President**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Part 1: Section C

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OTHER BUSINESS ENTITIES

Applicant's Name **American Energy Corporation**

A separate attachment is to be submitted for each business entity.

Name of business entity **North American Coal Royalty Company**

Statutory agent

Street Address

City State Zip

Person's name **Douglas Darby** Position **Director**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **Bob Carlton** Position **Director**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **Bob Carlton** Position **Vice President**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **Michael Gregory** Position **Director**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Part 1: Section C

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OTHER BUSINESS ENTITIES

Applicant's Name **American Energy Corporation**

A separate attachment is to be submitted for each business entity.

Name of business entity **North American Coal Royalty Company**

Statutory agent [REDACTED]

Street Address [REDACTED]

City [REDACTED] State [REDACTED] Zip [REDACTED]

Person's name **Lee Burton** Position **Controller**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name **Otes Bennett Jr** Position **Director**

Street Address **14785 Preston Road Suite 100**

City **Dallas** State **Texas** Zip **75240-7891**

Person's name [REDACTED] Position [REDACTED]

Street Address [REDACTED]

City [REDACTED] State [REDACTED] Zip [REDACTED]

Person's name [REDACTED] Position [REDACTED]

Street Address [REDACTED]

City [REDACTED] State [REDACTED] Zip [REDACTED]

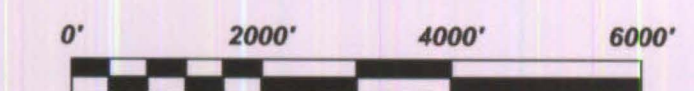
Part 1: Section C



- AREA PERMITTED D-0425-1
- AREA PERMITTED D-0425-3
- AREA PERMITTED D-0425-5
- APPLICATION D-0425-10
- APPLICATION D-0425-12
- FUTURE PERMIT AREA
- FUTURE PERMIT AREA
- FUTURE PERMIT AREA

RECEIVED
JUN 26 2009
DIVISION OF MINERAL RESOURCES
CAMBRIDGE

Scale: 1" = 2000'



AMERICAN ENERGY CORPORATION CENTURY MINE

ADDENDUM TO PART 1, ITEM C(7) FUTURE APPLICATION AREAS AND SEQUENCE

DATE PREPARED: NOVEMBER 3, 2008 DRAWN BY: JMC Revised: 02-01-09, 06-01-09



342 High St., Box 471
Flushing, Ohio 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
e-mail: hamilton@1st.net
www.hamiltonandassoc.com

- C. (8) (a) Provide either of the following to allow for coal mining operations on the permit area:
- (i) A copy of the right-of-entry documents attached as addenda, or
 - (ii) A Right-of-Entry Affidavit
- (b) Provide either of the following to allow for coal mining operations within the underground workings:
- (i) A copy of the right-of-entry documents attached as addenda, or
 - (ii) A Right-of-Entry Affidavit

MEMORANDUM OF LEASE**Instrument
200300007911**Made this 16th day of June, 2003.

BETWEEN

NORTH AMERICAN COAL ROYALTY COMPANY, a Delaware corporation with offices at 14785 Preston Road, Suite 1100, Dallas, Texas 75254-7891, hereinafter called "Lessor",

AND

CONSOLIDATED LAND COMPANY, an Ohio corporation with offices at Suite 300, 29325 Chagrin Boulevard, Pepper Pike, OH 44122, hereinafter called "Lessee".

WITNESSETH:

WHEREAS, by a certain Lease, made and entered into November 11, 1996, Lessor did lease to Lessee all the minable and merchantable coal, and the coal seam gas incident thereto, in the Pittsburgh No. 8 seam of coal in and underlying those certain pieces, parcels or tract of land which are situated in Washington Township, Belmont County, Ohio, as more particularly shown and described on Schedule 1, attached hereto and made a part hereof; and

WHEREAS, in lieu of recording said Lease, the parties hereto have executed and acknowledged and desire to place on record this Memorandum of Lease.

LESSOR: North American Coal Royalty Company
14785 Preston Road, Suite 1100
Dallas, TX 75254-7891

LESSEE: Consolidated Land Company
29325 Chagrin Boulevard
Suite 300
Pepper Pike, OH 44122

200300007911
Filed for Record in
BELMONT COUNTY, OHIO
MARY CATHERINE NIXON
07-14-2003 At 12:25 pm.
LEASE 22.00
Volume 112 Page 191 - 194

DATE OF LEASE: November 11, 1996

LEASED PREMISES: All those certain Pittsburgh No. 8 seam of coal properties in Wahington Township, Belmont County, Ohio described on Schedule 1

TERM : Lease commences on November 11, 1996 and shall continue in force and effect until the exhaustion of all the subject merchantable and minable coal fom the Leased Premises.

Russ Graham
RUSSELL GRAHAM
Vice President

TRANSFER NOT NECESSARY

7-14-03

J.A. PAPPANO, AUDITOR

DEPUTY

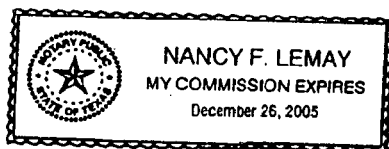
ACKNOWLEDGEMENT

STATE OF TEXS

COUNTY OF DALLAS

On this 16th day of June, 2003, before me, a Notary Public, personally appeared Thomas A. Koza and Andrew S. Good who acknowledged themselves to be the President and Secretary of North American Coal Royalty Company, and that as such officers being duly authorized to do so, executed the foregoing instrument on behalf of such corporation for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.



Nancy F. Lemay
Notary Public

ACKNOWLEDGEMENT

STATE OF OHIO

COUNTY OF Belmont

On this 20th day of June before me, a Notary Public, personally appeared Peter J. Vujanic and Robert D. Moore who acknowledged themselves to be the President and Treasurer of Consolidated Land Company, and that as such officers being duly authorized to do so, executed the foregoing instrument on behalf of such corporation for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.



BARBARA L. RUSH
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES 9-01-04

Barbara L. Rush
Notary Public

Prepared by: Consolidated Land Company

SCHEDULE 1 TO LEASE AGREEMENT

LANDS COMPRISING THE LEASED PREMISES

PARCEL NO.	TRACT	GRANTEE	GRANTOR	REMARKS	VOL.	PAGE
1		North American Coal Royalty Company	Bellaire Corp.	7.956 Ac.	668	307
2				39.430 Ac.	668	308
3				1.555 Ac.	668	309
4				105.00 Ac.	668	311
5				137.00 Ac.	668	311
6	1			40.00 Ac.	668	313
7	2			18.00 Ac.	668	313
8				19.979 Ac.	668	313
9	1			41.344 Ac.	668	315
	2			29.672 Ac.	668	316
	1			10.712 Ac.	668	317
	2			1.500 Ac.	668	317
	3			61.00 Ac.	668	317
	4			55.00 Ac.	668	318
	5			9.304 Ac.	668	319
10				0.080 Ac.	668	320
11				25.00 Ac.	668	322
12	1			40.00 Ac.	668	322
13	2			101.00 Ac.	668	322
14	1			80.00 Ac.	668	323
15	2			80.24 Ac.	668	323
				15.916 Ac.	668	324

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

RIGHT-OF-ENTRY AFFIDAVIT

Applicant's Name **American Energy Corporation**

RIGHT-OF-ENTRY AFFIDAVIT

State of **Ohio**, **Belmont** County, ss. **James R. Turner, Jr.** being first duly sworn,
says that the following described documents convey to the applicant the legal
right explained below and is a subject of litigation as shown below.

Type of document **Lease**

Execution Date **February 1, 2002**

Expiration Date **Until all mineable and merchantable coal has been
depleted**

Parties: From **Consolidated Land Company to American Energy
Corporation**

Description of land: Number of Acres **603.28**

County **Belmont** Township **Washington**

Section **14, 20, 26** Lot **22**

Explanation of legal rights claimed **See Addendum to Right-of-Entry Affidavit**

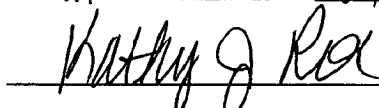
Pending litigation Yes ☐ No ☒


Signature of Affiant

6/1/2009
Date

TREASURER
Position

Sworn to before me and subscribed in my presence this **1st** day of,
June, 20 **09**


Notary Public



KATHY J. ROE
Notary Public, State of Ohio
My Commission Expires Dec. 14, 2009

Part 1: Section C

**Addendum to Right-of-Entry Affidavit
American Energy Corporation**

**Leased Mining Rights
Consolidated Land Company to American Energy Corporation**

Mining rights conveyed by Wyoming Pocahontas Land Co., (fka Youghioghenny and Ohio Coal Company) to Consolidated Land Company in Volume 707 Page 1, Recorder's Office, Belmont County, Ohio: Page 505, Parcel No. 2(3), First Tract (2-13-3); Page 506, Parcel No. 6(10) (2-13-10) (2-13-11) (2-13-12); Page 537, Parcel No. 79(15) (2-13-165); Page 541, Parcel No. 82(61) (2-13-170); Page 545, Parcel No. 85(72), Second Tract (2-13-175), Third Tract (2-13-176); Page 419, Tract No. 2 (2-8-2).

**Addendum to Right of Entry Affidavit
American Energy Corporation**

**Table A
Summary of Exhibit "A"
Limited Warranty Deed, Volume 707 Page 1
Wyoming Pocahontas Land Co. to Consolidated Land Company**

Deed Volume/Page	Parcel/Tract	Map Identification No.
707/505	No. 2(3)/First	2-13-3
707/506	No. 6(10)	2-13-10, 2-13-11, 2-13-12
707/537	No. 79(15)	2-13-165
707/541	No. 82(61)	2-13-170
707/545	No. 85(72)/Second	2-13-175
707/545	No. 85(72)/Third	2-13-176
707/419	Tract No. 2	2-8-2

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VCL 112 PAGE 161

MEMORANDUM OF LEASE

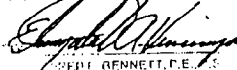
Instrument
200300006636

THIS MEMORANDUM OF LEASE (this "Memorandum"), dated as of May 23, 2003, by and between Consolidated Land Company, an Ohio corporation having a mailing address at 29325 Chagrin Boulevard, Suite 300, Pepper Pike, Ohio 44122 (the "Lessor"), and American Energy Corporation, an Ohio corporation having a mailing address at 43521 Mayhugh Hill Road, Township Highway 88, Beallsville, Ohio 43716 (the "Lessee"). The Lessor and the Lessee are parties to that certain Lease Agreement dated February 1, 2002 (the "Lease"), pursuant to which the Lessor leased to the Lessee certain land described on Exhibit A attached hereto and incorporated herein by reference and the improvements located thereon.

1. The name of the Lessor under the Lease is: Consolidated Land Company.
2. The name of the Lessee under the Lease is: American Energy Corporation.
3. The address of the Lessor is: 29325 Chagrin Boulevard, Suite 300, Pepper Pike, Ohio 44122. The address of the Lessee is: 43521 Mayhugh Hill Road, Township Highway 88, Beallsville, Ohio 43716.
4. The date of execution of the Lease is: February 1, 2002.
5. The Lessor leased to the Lessee the land described on Exhibit A attached hereto and incorporated herein by reference and the improvements located thereon.
6. The date of commencement of the term of the Lease was: February 1, 2002.
7. The term of the Lease is for a period lasting until all mineable and merchantable coal has been depleted.
8. This Memorandum is executed for recording. The Lease contains and sets forth other important terms and provisions which are incorporated herein by reference.
9. This Memorandum shall not limit, expand, supplement or modify the Lease, and in the event of any conflict between the terms of this Memorandum and the Lease, the Lease shall control.

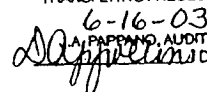
[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

TRANSFER NOT NECESSARY


ROBERT BENNETT, C.E.
COUNTY ENGINEER 06-10-03

MI111320931021TX9021.DOC\68535.0146

TRANSFER NOT NECESSARY

6-16-03

J.A. PAPANO, AUDITOR
DEPUTY

Prepared By:

NAME: AMERICAN ENERGY CORPORATION
Co/ST: BELMONT CO., OH (4)

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 112 PAGE 162

IN WITNESS WHEREOF, the Lessor and the Lessee have duly executed this Memorandum as of the day and year first above written.

LESSOR:

CONSOLIDATED LAND COMPANY

By: 

Name: PETER J. VULTAWIG

Title: PRESIDENT

LESSEE:

AMERICAN ENERGY CORPORATION

By: 

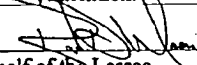
Name: Robert J. Moore

Title: President

CERTIFICATE OF RESIDENCE

The undersigned certifies that the residence of the Lessee is
43521 Mayhugh Hill Road, Beallsville, OH Attention: Steven Hill

43716

On Behalf of the Lessee 

200300006636
Filed for Record in
BELMONT COUNTY, OHIO
MARY CATHERINE NIXON
06-16-2003 01:11 pm.
LEASE 30.00
Volume 112 Page 161 - 166

**Addendum to Right of Entry Affidavit
American Energy Corporation**

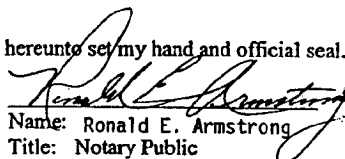
VOL 112 PAGE 163

CERTIFICATES OF ACKNOWLEDGEMENT

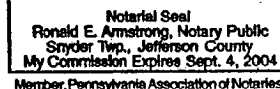
STATE OF PENNSYLVANIA)
) ss:
COUNTY OF JEFFERSON)

On this, the 27th day of May, 2003, before me, a Notary Public, the undersigned officer, personally appeared Peter J. Vuljanic, who acknowledged himself/herself to be the President of CONSOLIDATED LAND COMPANY, a corporation organized and existing under the laws of the State of Ohio, and that he/she, as such he, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself/herself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.


Name: Ronald E. Armstrong
Title: Notary Public

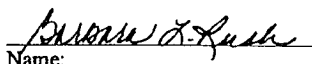
My commission expires: 09/04/2004



STATE OF Ohio)
) ss:
COUNTY OF Bulmont)

On this, the 13 day of May, 2003, before me, a Notary Public, the undersigned officer, personally appeared Robert D. Moore, who acknowledged himself/herself to be the President of AMERICAN ENERGY CORPORATION, a corporation organized and existing under the laws of the State of Ohio, and that he/she, as such he, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself/herself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.


Name:
Title: Notary Public

My commission expires: 9-01-04



BARBARA L. RUSH
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES 9-01-04

M:\132093\02\TX902\DOC\6535.0146

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 112 PAGE 164

EXHIBIT A

Situate in the Counties of Belmont and Monroe, State of Ohio:

Beginning at the SW corner of Section 12, T5N, R5W, Sunbury Township, Monroe County, Ohio;

Thence northerly with the west section line of said Section 12 to the NW corner of Section 12;

Thence easterly with the north section line of said Section 12 to the SW corner of Section 7, T6N, R5W, Wayne Township, Belmont County, Ohio;

Thence northerly with the west section lines of Sections 7, 8, 9, 10 and 11, T6N, R5W, to the quarter section line of Section 11, T6N, R5W;

Thence westerly with the quarter section line of the adjoining Section 17 to the center of Section 17, T6N, R5W;

Thence northerly with the quarter section line of said Section 17 to the south section line of Section 18, T6N, R5W;

Thence westerly with the south section line of said Section 18 to the SW corner of said Section 18;

Thence northerly with the west section line of said Section 18 to the SE corner of Section 19, T7N, R5W, Goshen Township;

Thence westerly with the south section lines of said Section 19 and Section 25 to the quarter section line of Section 25, T7N, R5W;

Thence northerly with the quarter section line of said Section 25 to the south section line of Section 26, T7N, R5W;

Thence continuing northerly with the quarter section line of said Section 26 to the north section line of said Section 26;

Thence easterly with the north section lines of Sections 26, 20, 14, 8 and 2 to the NE corner of Section 2, T7N, R5W, Goshen Township;

Thence southerly with the east section line of said Section 2 to the NW corner of Section 32, T6N, R4W, Smith Township;

MII:\132093\02\TX9021.DOC\68535.0146

**Addendum to Right of Entry Affidavit
American Energy Corporation**

PVCL 112 PAGE 165

Thence easterly with the north section line of said Section 32 to the NE corner of said Section 32;

Thence southerly with the east section line of Sections 32 and 31 to a point on said east section line which marks the SE corner of Consolidated Land Company's coal ownership in Section 31, T6N, R4W;

Thence westerly, parallel to the south section line of said Section 31, to a point on the section line between said Section 31 and Section 1, T7N, R5W, Gosben Township;

Thence southerly with the east section line of said Section 1 to the NE corner of Section 6, T6N, R5W, Wayne Township;

Thence southerly with the east section lines of Sections 6, 5, 4 and 3 to a point on the east section line of Section 3, T6N, R5W, which point marks the intersection of said east section line of Section 3 with the Exchange Line established by The Youghiogbeny and Ohio Coal Company and The Cambria Land Company on May 12, 1959;

Thence southeasterly with said Exchange Line to a point which marks the intersection of said Exchange Line with the east section line of Section 15, T5N, R4W, Washington Township;

Thence southerly with the east section lines of Sections 15, 14 and 13 to the NE corner of Section 18, T4N, R4W, Switzerland Township, Monroe County;

Thence westerly with the north section line of said Section 18 to the NW corner of said Section 18;

Thence southerly with the west section lines of Sections 18, 17 and 16 to the SW corner of Section 16, T4N, R4W;

Thence easterly with the south section lines of Sections 16 and 10 to the quarter section line of Section 10, T4N, R4W;

Thence southerly with the quarter section line of the adjoining Section 9 to the center of Section 9, T4N, R4W;

Thence westerly with the quarter section line of said Section 9, and continuing westerly along the quarter section lines of Sections 15, 21 and 27 to a point on the west section line of Section 27, T4N, R4W, Sunbury Township;

Thence northerly with the west section lines of Sections 27, 28 and 29 to the SE corner of Section 36, T4N, R4W;

\\111\132093\02\2TX9021.DOC\68535.0146

**Addendum to Right of Entry Affidavit
American Energy Corporation**

!VCL 112 PAGE 166

Thence westerly with the south section line of said Section 36 to the SW corner of said Section 36;

Thence northerly with the west section line of said Section 36 to the SE corner of Section 6, T5N, R5W, Sunbury Township;

Thence westerly with the south section lines of Sections 6 and 12 to the SW corner of Section 12, T5N, R5W, the place of beginning.

Excluding from the above described area any coal lands not owned in fee by Consolidated Land Company.

M11:\132093\02\2TX9021.DOC\68535.0146

Addendum to Right of Entry Affidavit
American Energy Corporation

PAID 3134-

11787

VOL 707 PAGE 1

LIMITED WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS: THAT, WYOMING POCAHONTAS LAND CO., (fka Youghiogheny and Ohio Coal Company) an Ohio corporation, with office at 39 Robin Place, Beckley, WV 25801, hereinafter called "GRANTOR", in consideration of the sum of Ten Dollars (\$10) and other valuable considerations to it paid by Consolidated Land Company, an Ohio corporation, whose tax mailing address is Box 505, 34208 Aurora Road, Solon, Ohio 44139, hereinafter called "GRANTEE", the receipt and sufficiency of which are hereby acknowledged, does hereby GRANT, BARGAIN, SELL AND CONVEY with limited warranty covenants, to the Grantee, its successors and assigns, all of the remaining coal contained in or underlying the tracts of land more particularly described on Exhibit "A", attached hereto and made a part hereof.

TOGETHER with such mining rights and other rights and privileges pertinent to the tracts set forth on Exhibit "A".

(HEREINAFTER CALLED THE "Premises").

The Grantor makes no guarantee or warranty with respect to the quality or quantity of coal remaining in said premises herein conveyed and Grantee accepts said premises known as the Allison Mine in its present condition and circumstance.

TO HAVE AND TO HOLD such premises, unto the said Grantee, its successors and assigns, forever, EXCEPT AND SUBJECT as hereinbefore provided, and expressly SUBJECT to all legal highways, exceptions, reservations, conditions, servitudes, easements, rights, limitations and restriction shown by instrument of record.

AND the said Grantor hereby covenants with the said Grantee that said premises are free and clear from all encumbrances by, from or through the said Grantor, and except and subject as hereinbefore provided, and that the Grantor will warrant and defend the same to the Grantee, only as against the lawful claims

Addendum to Right of Entry Affidavit
American Energy Corporation

VOL 707 PAGE 2

and demands of all persons claiming by, through or under the said Grantor herein, but against none other.

All of the aforescribed Parcels are conveyed SUBJECT TO:

(1) All matters of record as of the 1st day of March, 1995, said matters of record include but are not limited to the provisions contained in the description hereinbefore set forth and the provisions contained in all prior conveyances of record;

(2) All liens for nondelinquent real property taxes and assessments;

IT is the intent of the Grantor herein to convey to the Grantee, its successors and assigns all of the Pittsburgh No. 8 coal and mining rights appurtenant thereto, situated in Belmont County, Ohio, of which the Grantor is seized at the date hereof.

IN WITNESS WHEREOF, Grantor has caused its name to be hereunto subscribed by its duly authorized officers, this 24th day of February, 1995.

Signed and acknowledged
in the presence of:

Rama Blevis
Rama Blevis

David Dove
David Dove

Denise V. Stewart
Denise V. Stewart

Karen Joseph
Karen Joseph

[NOTE: TYPE OR PRINT NAME OF
WITNESSES UNDER EACH SIGNATURE]

WYOMING POCAHONTAS LAND CO.,
an Ohio Corporation

By Hubert Payne
Hubert Payne
Its President

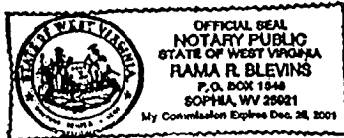
By Lauren Slone
Lauren Slone
Its Secretary

STATE OF West Virginia,
COUNTY OF Boke, SS:

On this the 24th day of February, 1995, before me, the undersigned Notary Public, personally appeared Hubert Payne, who acknowledged himself to be President of Wyoming Pocahontas Land Co., an Ohio corporation, and that as such officer being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation as President.

IN WITNESS WHEREOF, I hereunto set my hand and Notarial seal.

Rama R. Blevis
Notary Public
My Commission Expires: Dec 25, 2001



Addendum to Right of Entry Affidavit
American Energy Corporation

STATE OF Kentucky
COUNTY OF Belmont, SS:

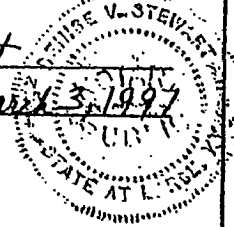
VOL 707 PAGE 3

On this the 2nd day of March, 1995, before me, the undersigned Notary Public, personally appeared Lauren Slone, who acknowledged herself to be Secretary of Wyoming Pocahontas Land Co., an Ohio corporation, and that as such officer being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation as Secretary.

IN WITNESS WHEREOF, I hereunto set my hand and Notarial seal.

Dixie V. Stewart
Notary Public

My Commission Expires: March 3, 1997



This Instrument Prepared By:
HANLON, DUFF, PALEUDIS & ESTADT CO., LPA
46457 National Road West
St. Clairsville, OH 43950

NEW DESCRIPTION
NECESSARY FOR FUTURE
TAX MAP TRANSFER

BY R. F. Bennett
FRED F. BENNETT
BELMONT COUNTY ENGINEER

TRANSFERRED
FEE \$62.00 DATE 3-24-95
SECT. 319.202 R.C. FEE \$14400.00
J.A. RAPPANO, AUDITOR
Diane Hanlon DEPUTY

BELMONT CO. RECORD OF DEEDS
VOL 707 PAGE 1
MAR 24 3 43 PM '95
RECORDED MAR 27 1995
STANLEY S. DICKSON
REC'D

Addendum to Right of Entry Affidavit
American Energy Corporation

VOL 707 PAGE 505

PARCEL NO. 2 (3) - WASHINGTON TOWNSHIP

First Tract 2-13-3

Known as and being a part of Section 26, Township 5, Range 4, and bounded and described as follows: Beginning at a stone planted at the quarter corner between Sections 25 and 26 (being the center of the south line of said Section 26) and running thence west with the section line 40 rods to a stone planted; thence north 40.60 rods to the Danford line; thence east with said line 40 rods to a stone planted; thence north 40.84 rods to a stone planted; thence east 80.28 rods to a stone planted; thence south 80 rods to a stone planted on section line; thence west 80.20 rods to the place of beginning; containing Fifty (50) Acres and Thirty-four (34) Perches. EXCEPTING therefrom a tract used as a graveyard and described as follows: Beginning at a stone planted on the section line 3.16 rods west from a stone planted for the southeast corner for the above described tract; thence west 20 rods; thence north 4 rods; thence east 20 rods; thence south 4 rods to the place of beginning; containing one-half (1/2) acre.

Second Tract

Being in Section 25, Township 5, Range 4; beginning for the same on the section line at a stone planted at the northeast corner of the northwest quarter of Section 25, and running thence with the section line W. 40 rods; thence south 20 rods; thence east 40 rods; thence north 20 rods to the place of beginning; containing Five (5) Acres. (Stone monument at each corner.)

Containing in both tracts 54 acres and 114 perches, more or less.

PARCEL NO. 3 (5) - WASHINGTON TOWNSHIP

Known as and being the west half of the southwest quarter of Section Twenty-five (25), Township Five (5), Range Four (4), in the District of Lands formerly subject to sale at Marietta, Ohio, containing 78.86 acres, more or less.

PARCEL NO. 4 (6) - WASHINGTON TOWNSHIP

First Tract:

The northeast quarter of the southwest quarter of Section Twenty-five (25), Township Five (5), Range Four (4), containing thirty-nine acres and sixty-eight and eight-tenths perches, more or less.

Second Tract:

The southeast quarter of the northwest quarter of Section Twenty-five, Township Five, Range Four, containing Thirty-nine acres and Sixty-eight and eight-tenths perches, more or less.

Third Tract:

Situated in the Township of Washington, County of Belmont and State of Ohio, and being a part of the northeast quarter of Section twenty-five, Township Five, Range Four; beginning for the same at a stone, the northwest corner of said quarter, and running thence south 3 degrees 40 minutes west 2645 feet to a stone, marked "A", the southwest corner of said quarter, running thence with the south line of said quarter south 86 degrees 30 minutes east 1250 feet to a stone; thence north 3 degrees east 2643 feet to a stone planted in a wild cherry tree on the section line, between Sections 25 and 26 on the south line of the cemetery; running thence with said section line north 87 degrees 15 minutes west 1199.5 feet to the place of beginning, containing seventy-three (73) acres, be the same more or less.

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 707 PAGE 506

PARCEL NO. 5 (1-8) - WASHINGTON TOWNSHIP

The undivided four-fifths (4/5) interest in the east half of the west half of the southwest quarter of Section thirty-three (33), Township Five (5), Range four (4), in the Marietta District, containing forty (40) acres, more or less;

Also all that part of the east half of said southwest quarter lying on the west side of Wildcat Run, the meanderings of said Wildcat Run are the boundaries, containing in said last mentioned tract thirty (30) acres, more or less, and containing in both tracts seventy (70) acres, more or less.

PARCEL NO. 6 (10) - WASHINGTON TOWNSHIP 2-13-10, 2-13-11, 2-13-12

Known as and being the southwest quarter of the southwest quarter of Section 14, Township 5, Range 4, in the District of Lands subject to sale at Marietta, Ohio, containing 40 acres, more or less.

Also the southeast quarter of the southeast quarter of Section 20, Township 5, Range 4, in the District of Lands subject to sale at Marietta, Ohio, containing 40 acres, more or less.

Also the southwest quarter of the southeast quarter of Section 20, Township 5, Range 4, in the District of Lands subject to sale at Marietta, Ohio, containing 40 acres, more or less.

Also the northeast quarter of the northeast quarter of Section 19, Township 5, Range 4, containing 39.95 acres, more or less. 2-13-13

PARCEL NO. 7 (12) - WAYNE TOWNSHIP

Known as and being the middle part of the southeast quarter of Section one (1), Township six (6), and Range five (5); beginning for the same at a stone in the quarter section line 38.72 rods east from the center of said section one; thence running with the quarter section line south 87½ degrees east 13.06 chains to a stake; thence south 2½ degrees west 11.50 chains to a stake in the center of County Road; thence with said road North 74½ degrees east 7.70 chains to a stake; thence south 39½ degrees east 6.15 chains to a stake in the center of the B. Z. & C. Railroad track; thence south 30½ degrees west 1 chain; south 37-¾ degrees west 1 chain; south 40-¾ degrees west 4 chains; south 37 degrees west 2 chains; south 31½ degrees west 1.50 chains; south 24½ degrees west 6.50 chains to a stake in the center of the R. road; thence north 87-¾ degrees west 18.29 chains to the east side of orchard; thence north 63½ degrees west 5.94 chains to the west side of orchard; thence north 58-¾ degrees west 4.38 chains to a locust tree, 6 inches in diameter; thence north 51 degrees east 1.54 chains to center of the County Road; thence with said road north 32 degrees east 1.80 chains; thence north 38 degrees east 5.59 chains; north 44 degrees east 2.27 chains; north 55½ degrees east 1.79 chains; north 38½ degrees east 4.50 chains to a stake, witness R. oak 15 inches bearing north 4 degrees east distance 90½ links; thence north 2½ degrees east 9.22 chains to the place of beginning, containing sixty (60) acres, more or less.

PARCEL NO. 8 (13) - WAYNE TOWNSHIP

Known as and being the north end of the east half of the southeast quarter of Section Nine (9), Township Six (6), Range Five (5); beginning at the original quarter corner on the east boundary of said section, station 1; thence south seven minutes east 45.84 poles to station 2 in Long Run; thence up said Run with its meanderings south 74-¾ degrees west 12.7 poles to station 3; thence south 79½ degrees west 33.3 poles to station 4; thence south 87½ degrees west 18 poles to station 5; thence south 75 degrees west 17.8 poles to station 6 where the west boundary

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 707 PAGE 528

district of lands formerly for sale at Marietta, Ohio, containing 20 acres, more or less, and being the same lands conveyed by Martha Kirkbride to Ebenezer Taylor by deed dated July 1, 1849, and recorded in Volume 33, at page 444.

Fourth Tract

Being a part of the southwest quarter of the southeast quarter of Section 32, Township 5, Range 4, together with a part of the northwest quarter of the northeast quarter of Section 31, Township 5, Range 4; beginning for the same at the northwest corner of said southwest quarter of the southeast quarter of Section 32; thence east with the north boundary of said quarter 42 poles to a corner on the east side of a small run; thence down said run to its junction, with a larger run, and to a large sand rock in a small drain near the top of the first bank on the south side of said larger run; thence on a straight to a White Oak tree on the east and west line dividing in the center the said northwest quarter of the northeast quarter of Section 31; thence west with said center line 68 poles to a corner on the west boundary of said last mentioned quarter of quarter; thence north 120 poles to the place of beginning; containing 40 acres more or less.

PARCEL NO. 62 (82) - WAYNE TOWNSHIP

PARCELS NO. 62 THROUGH 71 LEFT INTENTIONALLY BLANK.

Said tracts of coal hereinabove described under the headings "PARCEL NO. 1" to "PARCEL NO. 71", inclusive, being the same tracts of coal respectively described under the headings "PARCEL NO. 1", to "PARCEL NO. 71" inclusive, in the deed from The Cleveland Trust Company, Trustee under the Last Will and Testament of William D. Rees, deceased, to S. H. Robbins, dated July 1st, 1918, recorded in Volume 218, Page 2 et seq. of the Deed Records of Belmont County, Ohio; which tracts of coal are respectively referred to under the headings "PARCEL NO. 1" to "PARCEL NO. 71", inclusive, in said deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, as having been conveyed to Peter M. Hitchcock and William D. Rees from the various grantors therein respectively named, by the various deeds therein respectively specified by date and by volume and page of record; to which deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, and to each of which deeds from various grantors to Peter M. Hitchcock and William D. Rees, therein mentioned, reference is hereby made.

Together with all easements, options, rights and privileges described in, and granted by, said deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1st, 1918, under said headings, "PARCEL NO. 1" to "PARCEL NO. 71", inclusive, thereof, which easements, options, rights and privileges are therein defined as being those described in the respective deeds from the various grantors to Peter M. Hitchcock and William D. Rees, above referred to, and as being contained in said various deeds in form and language as follows:

"Together with the free and uninterrupted rights of way into, upon and under said described land, at such points, and in such manner as may be useful for the purpose of digging, draining and ventilating, and mining and removing said coal, together with the privilege of mining and removing through said described premises other coal belonging to said Grantees, their heirs and assigns, or which may hereafter be acquired, together with the right and privilege to make drains on the surface, and air holes, and change the same as the convenience of mining may require, together with all mining privileges on said surface or under it necessary for the removal of all of the Pittsburgh Vein underlying the same and neighboring properties now owned, or hereafter acquired by said Grantees, their heirs and assigns; and

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 707 PAGE 529

said Grantees, their heirs and assigns, shall in no wise be liable for damages for failure to support the overlying surface, or for the sinking or falling in of said surface, or for destroying any spring or well of water, or for diverting any water flow or natural stream by reason of the removal of said coal or the exercise of any of the above mining privileges."

"It is expressly understood and agreed that the enumeration herein is in enlargement and not in restriction of the incidental rights accruing to said Grantees, by virtue of the within grant of coal and mining privileges."

"And together with the right to use and occupy such amount of surface of the above described land as may in the opinion of said Grantees, their heirs and assigns, from time to time, be useful for the purpose of mining said coal or exercising any rights incidental thereto, or that may be useful for the deposit of gob or refuse from said mines, or for carrying on the coal business and for the erection of buildings and machinery and tenant houses, and all other buildings needful or useful to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and other structures, and for the operation of railroads; and the said Grantors do, for themselves and their heirs, executors, administrators and assigns, covenant and agree that Grantors will upon demand and payment of, at the rate not exceeding One Hundred Dollars per acre, by the Grantees, their heirs and assigns, execute and deliver unto said Grantees, their heirs, and assigns, a good and sufficient deed of General Warranty, (and furnish therewith a complete Abstract of Title showing said lands to be free and clear of liens and encumbrances), conveying in fee simple, clear of liens and encumbrances, such amount of the above described land as Grantees in their opinion may require for the purposes herein next above set forth, And said Grantees agree to purchase the same at not exceeding said above stipulated price per acre."

"The Grantors reserve the rights to bore or dig through said vein of coal for oil or gas, but such boring or digging shall not interfere with the mining or removal of said coal."

It being expressly understood and agreed that the words "Grantor" or "Grantors", as used in the foregoing grant of rights and options, refer to the Grantors of Peter M. Hitchcock and William D. Rees, and not to The Cleveland Trust Company, Trustee, as Grantor in said deed to S. H. Robbins, or to said S. H. Robbins, as Grantor in former deed, and that in the execution and delivery of the former deed, said S. H. Robbins did assign and make over to The Cleveland Trust Company, as Grantee therein, only the interest which said S. H. Robbins had in such rights and options.

PARCEL NO. 72 (2) - WASHINGTON TOWNSHIP

Known as and being the northwest quarter of the northwest quarter of Section twenty-six (26) and the northeast quarter of the northeast quarter of Section thirty-two (32), in Township Five (5), of Range four (4), in the district of Marietta and State of Ohio, containing eighty acres, more or less.

Being the same tract of coal described under the heading "PARCEL NO. 72" in the deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July, 1918, recorded in Vol. 218, Page 2, et seq., of the Deed Records of Belmont County, Ohio; and being therein referred to as having been conveyed by Elizabeth Myers (unmarried) to Peter M. Hitchcock and William D. Rees, by deed dated April 9, 1903, and recorded in Vol. 145, Page 201 of the Deed Records of Belmont County, Ohio; to which deeds reference is hereby made.

TOGETHER with all easements, options, rights and privileges described in, and granted by, said deed from The Cleveland Trust

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 707 PAGE 537

"It is expressly understood and agreed that the enumeration herein is an enlargement and not a restriction of the incidental rights accruing to said grantees, by virtue of the within grant of coal and mining privileges."

"And the said grantor for himself and his heirs, executors, administrators and assigns, covenants and agrees with said grantees, their heirs and assigns, that he will upon demand and the payment therefor by said grantees, their heirs or assigns, at the rate of One Hundred Dollars per acre, convey by good and sufficient deed of general warranty in fee simple to said grantees, their heirs or assigns, such amount of said above described surface as may, in the opinion of said grantees, their heirs or assigns, from time to time, be useful for the purpose of mining said coal, or for exercising any right incidental thereto, or that may be useful for the deposit of gob or refuse from said mines, or for carrying on the coal business, or for the erection of the necessary buildings and machinery and tenement houses, and all other buildings necessary to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and necessary structures, and for the operation of railroads."

"Said Grantor reserves the right to operate through said seam of coal for oil, gas or other minerals."

PARCEL NO. 79 (15) - WASHINGTON TOWNSHIP 2-13-165

Being the northwest quarter of Section Fourteen (14), Township Five (5) and Range four (4), and the northwest quarter of the Southwest quarter of Section Fourteen (14), Township Five (5), Range Four (4), and the southeast quarter of the northeast quarter of Section Twenty (20), Township Five (5), Range Four (4), and the northeast quarter of the southeast quarter of Section Twenty (20), Township Five (5), Range Four (4), containing in all two hundred and eighty (280) acres, more or less.

Being the same tract of coal described under the heading "PARCEL NO. 79" in the deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1, 1918, recorded in Vol. 218, Page 2, et seq., of the Deed Records of Belmont County, Ohio; and being therein referred to as having been conveyed by John McGary and David McGary (both unmarried) to Peter M. Hitchcock and William D. Rees, by deed dated February 13, 1903, and recorded in Vol. 143, Page 70, of the Deed Records of Belmont County, Ohio; to which deeds reference is hereby made.

TOGETHER with all easements, options, rights and privileges described in, and granted by, said deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1, 1918, under said heading "PARCEL NO. 79", thereof (and under subsequent clauses thereof as to rights and options), which easements, options, rights and privileges are therein referred to as being contained in said above-mentioned deed from John McGary and David McGary to said Hitchcock and Rees, as follows:

"Together with the free and uninterrupted rights of way into, upon and under said described land, at such points, and in such manner as may be useful for the purpose of digging, draining and ventilating and mining and removing said coal, together with the privilege of mining and removing through said described premises, other coal belonging to said Grantees, their heirs and assigns, or which may be hereafter acquired, together with the right and privilege to make drains on the surface and air holes, and change the same as the convenience of mining may require, together with all the mining privileges on said surface or under it necessary for the removal of all the Pittsburgh vein underlying the same and neighboring properties now owned or hereafter acquired by said Grantees, their heirs and assigns; and said Grantees, their heirs and assigns, shall in no wise be liable for damages for

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 707 PAGE 538

failure to support the overlying surface, or for the sinking or falling in of said surface, or for destroying any spring or well of water, or for diverting any water flow or natural stream by reason of the removal of said coal or the exercise of any of the above mining privileges.

"It is expressly understood and agreed that the enumeration herein is in enlargement and not in restriction of the incidental rights accruing to said Grantees, by virtue of the within grant of coal and mining privileges."

"And said grantors, for themselves and their heirs, executors, administrators and assigns, covenant and agree with said grantees, their heirs and assigns, that they will upon demand and the payment therefor by said grantees, their heirs or assigns, at the rate of not exceeding One hundred dollars per acre, convey by good and sufficient deed of general warranty in fee simple to said grantees, their heirs or assigns, such amount of said above described surface as may, in the opinion of said grantees, their heirs or assigns, from time to time, be useful for the purpose of mining said coal, or for exercising any right incidental thereto, or that may be useful for the deposit of gob or refuse from said mines or for carrying on the coal business, or for the erection of necessary buildings and machinery and tenement houses, and all other buildings necessary to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and necessary structures, and for the operation of railroads.

"Said grantors reserve the right to operate through said seam of coal for oil, gas, coal and all minerals and to reasonable compensation for any damage done to growing crops on said lands by said grantees, their agents, heirs or assigns."

PARCEL NO. 80 (55) - WASHINGTON TOWNSHIP

Being a part of the northeast quarter of Section 25, Township 5, Range 4; beginning for the same at a stone marked "A", the northeast corner of said Section 25; running thence with the eastern line of said Section 25, south 4 degrees 15 minutes west 1614.4 feet to a stake in a run; thence north 87 degrees 15 minutes west 473.2 feet; thence south 36 degrees 30 minutes west 1216.4 feet to a point on the south line of said quarter; thence with said line north 86 degrees 30 minutes west 291 feet to a stone, the southeast corner of Elizabeth Riley's land; thence with her line north 3 degrees east 2643 feet to a stone planted in a Wild Cherry tree, on the Section line between Sections 25 and 26, on the south line of the cemetery; thence with said section line south 87 degrees 15 minutes east 1454.6 feet to the place of beginning; containing 69.65 Acres, more or less.

EXCEPTING therefrom the following described real estate, the same having been conveyed by Iva Noffsinger and husband to Jane G. Gates by deed dated July 31, 1883, and recorded in Volume 81, at Page 519, Records of Deeds of said County, to-wit: Being the north part of the northeast quarter of Section 25, Township 5, Range 4; beginning 10 rods west of the northeast corner of Section 25, at a stone in a run; thence up said run, following the road making the middle of the road the line, south 61½ degrees west 18.16 rods; thence south 68 degrees west 11.28 rods to a small drain; thence north 74 degrees west 23.80 rods; thence south 88 degrees west 16 rods; thence north 49½ degrees west 9.88 rods to a stone at a corner of the graveyard, on the section line between Sections 25 and 26, 72.8 feet east of the stone planted in the Wild Cherry tree, the northeast corner of Iva Noffsinger's land; thence with said section line east 73.92 rods to the place of beginning; containing Three and one-fourth (3¼) acres, more or less.

Being the same tract of coal described under the heading "PARCEL NO. 80" in the deed from The Cleveland Trust Company, Trustee, to

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 10 / PAGE 541

"And the said grantors do for themselves and their heirs, executors, administrators and assigns, covenant and agree that grantors will upon demand and payment of at the rate of One Hundred Dollars per acre by the grantees, their heirs and assigns, convey in fee simple unto the said grantees, their heirs and assigns, such amount of said above described surface as may, in the opinion of said grantees, their heirs and assigns, from time to time, be useful for the purpose of mining said coal or exercising any right incidental thereto, or that may be useful for the deposit of gob or refuse from said mines or for carrying on the coal business, or for the erection of necessary buildings and machinery and tenant houses, and all other buildings necessary to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and necessary structures, and for the operation of railroads."

"And the said grantees do for themselves, their heirs and assigns, agree to pay for such real estate as may be used for the purpose herein next above set forth at the rate of \$100 per acre."

"The grantors reserve the right to operate through said coal for oil and gas and other minerals."

PARCEL NO. 82 (61) - WASHINGTON TOWNSHIP

First Tract 2-13-170

Being a part of the southeast quarter of Section Twenty six in Township Five of Range Four in the District of Lands heretofore subject to sale at Marietta, Ohio; beginning for the same at a stone marked "A", the southeast corner of said section; running thence north $4\frac{1}{4}$ degrees East 1747 feet to a stake on the section line; thence north $38\frac{1}{4}$ degrees west 331 feet to a stone; thence north $19-3/4$ degrees west 254 feet; thence north 87 degrees 15 minutes west 984 feet to a stone; thence south 4 degrees 15 minutes west 2219 feet to a stone; thence south 87 degrees 15 minutes east 1326.5 feet to the place of beginning, containing 65.10 acres. EXCEPTING therefrom the following described tract known as The School House Lot and described as follows: It being a part of the east half of said southeast quarter of Section Twenty-six on the west side of said half quarter and west of the public road. Beginning at a stone (as originally marked) marked with the letter "A", situated at the edge of said road, thence running north twelve (12) rods to a stone marked "B"; thence east six (6) rods to a stone marked "C"; thence South to the place of beginning, containing one fourth ($1/4$) of an acre, and leaving after said exception sixty-four and eighty-five hundredths ($64-85/100$) acres.

Second Tract

Being a part of the northeast quarter of Section Twenty-five in Township Five of Range Four in the District of Lands heretofore subject to sale at Marietta, Ohio; beginning for the same 10 rods west of the northeast corner of said Section Twenty-five at a stone in a run; thence up said run following the road, making the middle of the road the line, south $61\frac{1}{4}$ degrees west 18.16 rods; thence south 68 degrees west 11.28 rods to a small drain; thence north 74 degrees west 23.80 rods; thence south 88 degrees west 16 rods; thence north $49\frac{1}{4}$ degrees west 9.88 rods to a stone at the corner of the cemetery fence on the section line between Sections Twenty-five and Twenty-six; thence east 73.92 rods to the place of beginning, containing three and one-fourth ($3\frac{1}{4}$) acres; and containing in all sixty-eight and ten hundredths (68.10) acres.

Being the same tracts of coal described under the heading "PARCEL NO. 82" in the deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1, 1918, recorded in Vol. 218, Page 2, et seq., of the Deed Records of Belmont County, Ohio; and being

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 707 PAGE 542

therein referred to as having been conveyed by Matthias N. Gates and Ida L. Gates, husband and wife, to Peter M. Hitchcock and William D. Rees, by deed dated May 12, 1903, and recorded in Vol. 143, Page 294, of the Deed Records of Belmont County, Ohio; to which deeds reference is hereby made.

TOGETHER with all easements, options, rights and privileges described in, and granted by, said deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1, 1918, under said heading "PARCEL NO. 82" thereof (and under subsequent clauses thereof as to rights and options), which easements, options, rights and privileges are therein referred to as being contained in said above mentioned deed from Matthias N. Gates and Ida L. Gates to said Hitchcock and Rees, as follows:

"Together with the free and uninterrupted rights of way into, upon and under said land at such points and in such manner as may be proper for the purpose of digging, draining and ventilating, and mining and removing said coal, together with the right of mining and removing through said premises other coal belonging to said Grantees, their heirs and assigns, or which may be hereafter acquired, together with the right to make drains on the surface, and air holes, and change the same as the convenience of mining may require, together with all mining privileges on said surface, or under it, necessary for the removal of all said coal underlying the same and neighboring properties now owned or hereafter acquired by said grantees, their heirs and assigns, and waiving and releasing said grantees, their heirs and assigns, from all liability for damages for failure to support the overlying surface, or for sinking or falling in of such surface, or for destroying any spring or well of water, or for diverting any water flow or natural stream by reason of the removal of such coal or the exercise of any of the above mining privileges, together with all incidental rights that shall or may accrue to the said grantees, their heirs and assigns, by virtue of the within grant of coal and mining privileges."

"And the said grantors do for themselves and their heirs, executors, administrators and assigns, covenant and agree that grantors will upon demand and payment of at the rate of One Hundred Dollars per acre by the grantees, their heirs and assigns, convey in fee simple unto the said grantees, their heirs and assigns, such amount of said above described surface as may, in the opinion of said grantees, their heirs and assigns, from time to time, be useful for the purpose of mining said coal or exercising any right incidental thereto, or that may be useful for the deposit of gob or refuse from said mines or for carrying on the coal business, or for the erection of necessary buildings and machinery and tenant houses, and all other buildings necessary to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and necessary structures, and for the operation of railroads."

"And the said grantees, do for themselves, their heirs and assigns, agree to pay for such real estate as may be used for the purpose herein next above set forth at the rate of \$100 per acre."

"The grantors reserve the right to operate through said coal for oil, gas and other minerals."

PARCEL NO. 83 (62) - WASHINGTON TOWNSHIP

Known as and being the northwest quarter of the southwest quarter of Section Thirty-two, Township Five of Range Four in the District of Lands sold at Marietta, Ohio, containing forty acres, more or less. The real estate aforesaid was devised to Leora Perkins by the will of Elias Perkins, deceased, which will is recorded in Volume 18, page 363, Record of Wills of Belmont County, Ohio.

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 101 PAGE 440

"The Grantors reserve the right to operate through said coal for oil and gas and all other minerals."

PARCEL NO. 85 (72) - WASHINGTON TOWNSHIP

First Tract

The West half of the northwest quarter of Section Nineteen (19), Township Five (5), Range Four (4), containing eighty acres, three rods and twenty-nine perches.

Second Tract 2-13-175

The Southwest quarter of the southwest quarter of Section Twenty (20), Township Five (5), Range Four (4), containing forty acres and twenty-four perches.

Third Tract 2-13-176

The southeast quarter of the southwest quarter of Section Twenty (20), Township Five (5), Range Four (4), containing forty acres, and twenty-two perches.

Being the same tracts of coal described under the heading "PARCEL NO. 85" in the deed from The Cleveland Trust Company, Trustee, to S. H. Robbins dated July 1, 1918, recorded in Vol. 218, Page 2, et seq., of the Deed Records of Belmont County, Ohio; and being therein referred to as having been conveyed by Thomas J. Pugh and Susanna Pugh, husband and wife, to Peter M. Hitchcock and William D. Rees, by deed dated June 17, 1904, and recorded in Vol. 149, Page 316, of the Deed Records of Belmont County, Ohio; to which deeds reference is hereby made.

TOGETHER with all easements, options, rights and privileges described in, and granted by, said deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1, 1918, under said heading "PARCEL NO. 85" thereof (and under subsequent clauses thereof as to rights and options), which easements, options, rights and privileges are therein referred to as being contained in said above mentioned deed from Thomas J. Pugh and Susanna Pugh to said Hitchcock and Rees, as follows:

"Together with the free and uninterrupted rights of way into, upon and under said land at such points and in such manner as may be proper for the purpose of digging, draining and ventilating and mining and removing said coal, together with the right of mining and removing through said premises other coal belonging to said grantees, their heirs and assigns, or which may be hereafter acquired, together with the right to make drains on the surface, and air holes, and change the same as the convenience of mining may require, together with all mining privileges on said surface, or under it, necessary for the removal of all said coal underlying the same and neighboring properties now owned or hereafter acquired by said grantees, their heirs and assigns, and hereby waiving and releasing said grantees, their heirs and assigns, from all liabilities for damages for failure to support the overlying surface, or for sinking or falling in of such surface, or for destroying any spring or well of water, or for diverting any water flow or natural stream by reason of the removal of such coal or the exercise of any of the above mining privileges, together with all incidental rights that shall or may accrue to the said grantees, their heirs and assigns, by virtue of this grant of coal and mining privileges."

"The grantors shall upon the payment by the grantees, their heirs and assigns, at the rate of one hundred dollars per acre therefor, convey to the said grantees, their heirs and assigns, such amount of said above described surface as may, in the opinion of the said grantees, their heirs and assigns, be useful for the purpose of mining said coal or exercising any right

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 707 PAGE 546

incidental thereto, or that may be useful for the deposit of gob or refuse from said mines, or for carrying on the coal business, or for the erection of necessary buildings and machinery and tenant houses, and all other buildings necessary to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and necessary structures, and for the operation of railroads, provided, however, that no surface shall be appropriated or sold within the distance of five hundred (500) feet from any building on said lands."

"The grantors do hereby reserve for themselves and their heirs and assigns, the right to operate through said coal for oil and gas and other minerals."

PARCEL NO. 86 (1-73) - WASHINGTON TOWNSHIP

The undivided one-sixth interest in the following premises:

First Tract 2-13-177

The northwest quarter of the northeast quarter of Section 26, Township 5 of Range 4, EXCEPTING therefrom 10 acres heretofore conveyed by Gratigny Stukey and wife to John Wright, bounded and described as follows: Beginning at the southeast corner of the said quarter quarter; thence north 40 rods to a stone; thence west 40 rods to a stone; thence south 40 rods to a stone; thence east 40 rods to the place of beginning, containing in said exception 10 acres, and leaving in said first tract after said exception thirty acres, more or less.

Second Tract

The south half of the southeast quarter of Section 27, Township 5, of Range 4, containing 79 acres, more or less.

Third Tract

Being 14 acres, more or less, situated on the south side of the north half of southeast quarter of Section 27, beginning at the northeast corner of south half of said quarter on the section line; thence north 8 1/4 rods; thence west 20 rods to the mouth of a small run; thence up said run following its meanderings to its source, to a sugar tree; thence west to the west boundary line of said quarter section; thence south 14.4 rods to the middle of said boundary line; thence east through the middle of said quarter section to the place of beginning, and containing in all the three above described tracts 123 acres, more or less.

Being the same tracts of coal described under the heading "PARCEL NO. 86" in the deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1, 1918, recorded in Vol. 218, Page 2, et seq., of the Deed Records of Belmont County, Ohio; and being therein referred to as having been conveyed by Mary Stukey, unmarried, to Peter M. Hitchcock and William D. Rees, by deed dated August 19, 1903, and recorded in Vol. 147, Page 226, of the Deed Records of Belmont County, Ohio; to which deeds reference is hereby made.

TOGETHER with all easements, options, rights and privileges described in, and granted by, said deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1, 1918, under said heading "PARCEL NO. 86" thereof (and under subsequent clauses thereof as to rights and options), which easements, options, rights and privileges are therein referred to as being contained in said above-mentioned deed from Mary Stukey to said Hitchcock and Rees, as follows:

"Together with the free and uninterrupted rights of way into, upon and under said described land at such points, and in such manner as may be useful for the purpose of digging, draining and

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 737 PAGE 413

South 86°-07'-36" East 1159.81 feet to a point of intersection between line of exchange herein and North line of Section 13, said point also being the Northeast corner of said Tract No. 1; thence leaving the North line of Section 13 and with the line of exchange herein South 15°-20'-00" West 2051.46 feet to a point on said line of exchange which is also the Southeast corner of said Tract No. 1; thence with said line of exchange North 60°-26'-46.76" West distance to a point on the West line of Section 13 which is also the Southwest corner of said Tract No. 1; thence leaving the line of exchange herein and with the West line of Section 13 North 3°-48'-42" East 1649.71 feet to the place of beginning, containing 40.969 acres, more or less.

TOGETHER with the free and uninterrupted right of way into, upon and under said coal and land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining, ventilating and carrying away said coal; hereby waiving all surface damages and right of support to overlying strata, and damages of any sort arising therefrom or through the removal of all the said coal; together with the privilege of mining and removing through and over said described premises other coal belonging to said party of the second part, his heirs, and assigns, or which may hereafter be acquired by said party of the second part. Said parties of the first part reserve the right to drill for oil and gas through the said coal.

TRACT NO. 2 2-8-2

Situated in Washington Township and being a part of the Southwest quarter of Section 14, Township 5, Range 4; beginning at the Northwest corner of said tract, which is also the Northwest corner of the East half of the Southwest quarter of Section 14, which bears South 86°-07'-36" East 1327.49 feet; thence North 3°-35'-44" East 2635.68 feet from the Southwest corner of Section 14; thence with the North line of the East half of the Southwest quarter South 86°-30'-05" East 379.93 feet to a point of intersection between the North line of the East half of the Southwest quarter and the line of exchange herein, which is also the Northeast corner of said TRACT NO. 2; thence leaving the North line of the East half of the Southwest quarter of Section 14, and with the line of exchange herein South 15°-20'-00" West 1867.58 feet to a point of intersection between the said line of exchange herein and the West line of the East half of the Southwest quarter of Section 14, which is also the southerly most point of said TRACT NO. 2; thence leaving the line of exchange herein and with the said West line of the East half of the Southwest quarter of Section 14 North 3°-35'-44" East 1827.88 feet to the place of beginning, containing 7.971 acres, more or less.

The total acreage of said coal lands herein conveyed in TRACTS 1 and 2 of PART 8 being 48.940 acres, more or less.

TOGETHER with the free and uninterrupted right of way into, upon and under said coal and land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining, ventilating and carrying away said coal; hereby waiving all surface damages, or damages of any sort arising therefrom or through the removal of all the said coal; together with the privilege of mining and removing through and over said described premises other coal belonging to said party of the second part, his heirs, and assigns, or which may hereafter be acquired by said party of the second party. Said parties of the first part reserve the right to drill for oil and gas through the coal, but not so as to interfere with any entry or opening that may have been made through said coal for the purpose of mining or removing same, and in case any oil or gas well should be drilled through said coal or coal mines, such well shall be cased through the coal with iron or steel pipe, which shall be allowed to remain permanently to protect such coal or coal mine from being

**Addendum to Right of Entry Affidavit
American Energy Corporation**

VOL 737 PAGE 423

injured by either water or gas escaping into said coal or coal mine.

The above described TRACTS 1 and 2 are a part of the premises conveyed to The Powhatan Mining Company by John Howard Pew, et al. by Deed dated September 14, 1943, recorded in Volume 343, Page 355 Deed Records of Belmont County, Ohio.

The previous Grantor, North American Coal Corporation, claimed title to the above described premises by virtue of Merger Agreement dated January 1, 1959, recorded in Volume 441, Page 630, Deed Records of Belmont County, Ohio.

The total acreage of said coal lands herein conveyed in TRACTS 1 and 2 being 48.940 acres.

PRIOR DEED REFERENCE: Volume 552, Page 289, Belmont County Deed Records.

PART 9

ALL the Pittsburgh No. 8 coal in and under the hereinafter described tracts of land:

Situated in Goshen and Warren Townships, Belmont County, Ohio, and being described as follows:

TRACT NO. 1: Situated in Goshen Township, Belmont County, Ohio, and in Section 34, Township 7, Range 5, and being the whole of said Section 34, but excepting therefrom the following described parcels:

Parcel No. 1: Being a part of the Southeast quarter of said Section 34, beginning at the southeast corner of said Section 34; thence with the south line of said Section 34, West, 1740.00 feet to a point; thence North 0° 30' East, 99.00 feet to a point; thence North 50° 00' East, 201.30 feet to a point; thence North, 79.70 feet to a point; thence North 83° 45' East, 1169.85 feet to a point; thence North, 14° 00' West, 221.92 feet to a point; thence North 28° 15' West, 118 feet to a point; thence South 75° 30' West, 312.84 feet to a point; thence North 24° 00' West, 328.02 feet to a point; thence North 77° 15' East, 262.84 feet to a point; thence North 22° 15' West, 300 feet to a point; thence North 27° 15' West, 727.98 feet to a point; thence South 75° 30' West, 23.88 feet to a point; thence North 27° 00' West, 66 feet to a point; thence North 63° 00' East, 478.50 feet to a point; thence North 70° 45' East, 830.25 feet to a point on the east line of said Section 34; thence with the east line of said Section 34, South, 2551.00 feet to the beginning, containing 57.73 acres, more or less. Being the same tract of coal and mining rights, that were conveyed by O. J. Mechling, Jr., et ux., to Amy R. Robinson, as First Tract in deed dated June 3, 1948, and recorded in Volume 381, Page 426, of Belmont County Deed Records.

Parcel No. 2: Being a part of the southeast quarter of said Section 34, beginning at a point at the southwest corner of said Parcel No. 2; from which the southeast corner of said Section 34 bears South, 79.70 feet; thence South 50° 00' West, 201.30 feet; thence South 0° 30' East, 99.00 feet to the south line of said Section 34; thence East, 1740.50 feet with the south line of said Section 34 to the said southeast corner of same; thence from said place of beginning, North, 1578.555 feet to a point; thence North 76° 30' East, 440.88 feet to a point; thence South 27° 15' East, 727.98 feet to a point; thence South 22° 15' East, 299.97 feet to a point; thence South 77° 15' West, 262.845 feet to a point; thence South 24° 00' East, 328.02 feet to a point; thence North 75° 30' East, 312.84 feet to a point; thence South 28° 15' East, 117.97 feet to a point; thence South 14° 00' East, 221.92 feet to

**Addendum to Part 1, C(8)(b)
Summary of Mining Rights
North American Coal Royalty Company
to
Consolidated Land Company**

Item 1. Lease rights to Parcel 2, Parcel 3, Parcel 5, and Parcel 13 (Tract 2).

“Together with the right to mine and remove such coal by any underground or deep mining methods, and together with any and all mining rights owned by the Lessor relative to the Leased Premises, to the extent and only to the extent, that Lessor owns and has the right to grant the same, excepting and reserving unto Lessor all such coal which lies within, or within three hundred (300) feet of the boundary of, the workings of Bellaire Corporation’s Powhatan No. 1 Mine.”

**Consolidated Land Company
to
American Energy Corporation**

Item 1. Mining rights to the following Parcels contained in Deed Volume 707 Page 1: Page 505, Parcel No. 2(3), First Tract (2-13-3); Page 506, Parcel No. 6(10) (2-13-10) (2-13-11) (2-13-12).

“Together with the free and uninterrupted rights of way into, upon and under said described land, at such points, and in such manner as may be useful for the purpose of digging, draining and ventilating, and mining and removing said coal, together with the privilege of mining and removing through said described premises other coal belonging to said Grantee, their heirs and assigns, or which may hereafter be acquired, together with the right and privilege to make drains on the surface, and air holes, and change the same as the convenience of mining may require, together with all mining privileges on said surface or under it necessary for the removal of all of the Pittsburgh Vein underlying the same and neighboring properties now owned, or hereafter acquired by said Grantees, their heirs and assigns; and said Grantees, their heirs and assigns, shall in no wise be liable for damages for failure to support the overlying surface, or for the sinking or falling in of said surface, or for destroying any spring or well of water, or for diverting any water flow or natural stream by reason of the removal of said coal or the exercise of any of the above mining privileges.”

“And together with the right to use and occupy such amount of surface of the above described land as may in the opinion of said Grantees, their heirs and assigns, from time to time, be useful for the purpose of mining said coal or exercising any rights incidental thereto, or that may be useful for the deposit of

job or refuse from said mines, or for carrying on the coal business and for the erection of buildings and machinery and tenant houses, and all other buildings needful or useful to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and other structures, and for the operation of railroads; and the said Grantors do, for themselves and their heirs, executors, administrators and assigns, covenant and agree that Grantors will upon demand and payment of, at the rate not exceeding One Hundred Dollars per acre, by the Grantees, their heirs and assigns, execute and deliver unto said Grantees, their heirs, and assigns, a good and sufficient deed of General Warranty, (and furnish therewith a complete Abstract of Title showing said lands to be free and clear of liens and encumbrances), conveying in fee simple, clear of liens and encumbrances, such amount of the above described land as Grantees in their opinion may require for the purposes herein next above set forth, and said Grantees agree to purchase the same at not exceeding said stipulated price per acre."

"The Grantors reserve the rights to bore or dig through said vein of coal for oil or gas, but such boring or digging shall not interfere with the mining or removal of said coal."

Item 2. Mining rights to the following Parcel contained in Deed Volume 707 Page 1: Page 537, Parcel No. 79(15) (2-13-165)

"Together with the free and uninterrupted rights of way into, upon and under said described land, at such points, and in such manner as may be useful for the purpose of digging, draining and ventilating, and mining and removing said coal, together with the privilege of mining and removing through said described premises other coal belonging to said Grantee, their heirs and assigns, or which may hereafter be acquired, together with the right and privilege to make drains on the surface, and air holes, and change the same as the convenience of mining may require, together with all mining privileges on said surface or under it necessary for the removal of all of the Pittsburgh Vein underlying the same and neighboring properties now owned, or hereafter acquired by said Grantees, their heirs and assigns; and said Grantees, their heirs and assigns, shall in no wise be liable for damages for failure to support the overlying surface, or for the sinking or falling in of said surface, or for destroying any spring or well of water, or for diverting any water flow or natural stream by reason of the removal of said coal or the exercise of any of the above mining privileges."

"And said grantors, for themselves and their heirs, executors, administrators, and assigns, covenant and agree with said grantees, their heirs and assigns, that they will upon demand and the payment therefor by said grantees, their heirs and assigns, at the rate of not exceeding One hundred dollars per acre, convey by good and sufficient deed of general warranty in fee simple to said grantees, their

heirs or assigns, such amount of said above described surface as may, in the opinion of said grantees, their heirs and assigns, from time to time, be useful for the purpose of mining said coal, or for exercising any right incidental thereto, or that may be useful for the deposit of gob or refuse from said mines or for carrying on the coal business, or for the erection of necessary buildings and machinery and tenement houses, and all other buildings necessary to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and necessary structures, and for the operation of railroads."

"Said grantors reserve the right to operate through said seam of coal for oil, gas, coal and all minerals and to reasonable compensation for any damage done to growing crops on said lands by said grantees, their agents, heirs or assigns."

Item 3. Mining rights to the following Parcel contained in Deed Volume 707 Page 1: Page 541, Parcel No. 82 (61) (2-13-170).

"Together with the free and uninterrupted rights of way into, upon and under said land at such points and in such manner as may be proper for the purpose of digging, draining and ventilating, and mining and removing said coal, together with the right of mining and removing through said premises other coal belonging to said Grantees, their heirs and assigns, or which may be hereafter acquired, together with the right to make drains on the surface, and air holes, and change the same as the convenience of mining may require, together with all mining privileges on said surface, or under it, necessary for the removal of all said coal underlying the same and neighboring properties now owned or hereafter acquired by said grantees, their heirs and assigns, and waiving and releasing said grantees, their heirs and assigns, from all liability for damages for failure to support the overlying surface, or for sinking or falling in of such surface, or for destroying any spring or well of water, or for diverting any water flow or natural streams by reason of the removal of such coal or the exercise of any of the above mining privileges, together with all incidental rights that shall or may accrue to the said grantees, their heirs and assigns, by virtue of the within grant of coal and mining privileges."

"And the said Grantors do, for themselves and their heirs, executors, administrators and assigns, covenant and agree that Grantors will upon demand and payment of at the rate of One Hundred Dollars per acre by the Grantees, their heirs and assigns, convey in fee simple unto the said Grantees, their heirs and assigns, such amount of said above described surface as may, in the opinion of said Grantees, their heirs and assigns, from time to time, be useful for the purpose of mining said coal or exercising any right incidental thereto, or that may be useful for the deposit of gob or refuse from said mines or for carrying on the coal business, or for the erection of necessary buildings and machinery and tenant houses, and all other buildings necessary to carry on the coal business,

or for the construction thereon of tracks, shafts, mine openings and necessary structures, and for the operation of railroads."

"And said Grantees do for themselves, their heirs and assigns, agree to pay for such real estate as may be used for the purpose herein next above set forth at the rate of \$100 per acre."

"The grantors reserve the right to operate through said coal for oil, gas and other minerals."

Item 4. Mining rights to the following Parcels contained in Deed Volume 707 Page 1: Page 545, Parcel No. 85 (72), Second Tract (2-13-175), Third Tract (2-13-176).

"Together with the free and uninterrupted rights of way into, upon and under said land at such points and in such manner as may be proper for the purpose of digging, draining and ventilating and mining and removing said coal, together with the right of mining and removing through said premises other coal belonging to said grantees, their heirs and assigns, or which may be hereafter acquired, together with the right to make drains on the surface, and air holes, and change the same as the convenience of mining may require, together with all mining privileges on said surface, or under it, necessary for the removal of all said coal underlying the same and neighboring properties now owned or hereafter acquired by said grantees, their heirs and assigns, and hereby waiving and releasing said grantees, their heirs and assigns, from all liabilities for damages for failure to support the overlying surface, or for sinking or falling in of such surface, or for destroying any spring or well of water, or for diverting any water flow or natural stream by reason of the removal of such coal or the exercise of any of the above mining privileges, together with all incidental rights that shall or may accrue to the said grantees, their heirs and assigns, by virtue of this grant of coal and mining privileges."

"The grantors shall upon the payment by the grantees, their heirs and assigns, at the rate of one hundred dollars per acre therefor, convey to the said grantees, their heirs and assigns, such amount of said above described surface as may, in the opinion of the said grantees, their heirs and assigns, be useful for the purpose of mining said coal or exercising any right incidental thereto, or that may be useful for the deposit of gob or refuse from said mines, or for carrying on the coal business, or for the erection of necessary buildings and machinery and tenant houses, and all other buildings necessary to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and necessary structures, and for the operation of railroads, provided, however, that no surface shall be appropriated or sold within the distance of five hundred (500) feet from any building on said lands."

"The grantors do hereby reserve for themselves and their heirs and assigns, the right to operate through said coal for oil and gas and other minerals."

Item 5. Mining rights to the following Parcels contained in Deed Volume 707 Page 1: Page 419, Tract No. 2 (2-8-2).

"Together with the free and uninterrupted right of way into, upon and under said coal and land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining, ventilating and carrying away said coal; hereby waiving all surface damages, or damages of any sort arising therefrom or through the removal of all the said coal; together with the privilege of mining and removing through and over said described premises other coal belonging to said party of the second part, his heirs, and assigns, or which may hereafter be acquired by said party of the second party. Said parties of the first part reserve the right to drill for oil and gas through the coal, but not so as to interfere with any entry or opening that may have been made through said coal for the purpose of mining or removing same, and in case any oil or gas well should be drilled through said coal or coal mines, such well shall be cased through the coal with iron or steel pipe, which shall be allowed to remain permanently to protect such coal or coal mine from being injured by either water or gas escaping into said coal or coal mine."

- C. (9) (a) List below the following information for each surface owner of land within the proposed permit area. **N/A**

OWNER NAME	COUNTY	TOWNSHIP	SECTION	LOT	T-	R-

- C. (9) (b) List below the following information for each surface owner of land within the proposed underground workings.

John E. & Norma J. Diver	Belmont	Washington	14 & 20		5	4
Ronald R., Sr. & Sara Reger	Belmont	Washington	14 & 20		5	4
Roy R. & Mary M. Miller	Belmont	Washington	14		5	4
John Christman	Belmont	Washington	14		5	4
Carol Baker	Belmont	Washington	26		5	4
Jason May	Belmont	Washington	26		5	4
Paula & Gary Moore	Belmont	Washington	26		5	4
Charles Orum	Belmont	Washington	20		5	4

D. AREAS WHERE MINING IS PROHIBITED OR LIMITED - Permit Area

- (1) Does the permit area included in this permit application include any area dedicated as a nature preserve pursuant to Chapter 1517., Ohio Revised Code? ___ Yes, X No. If "yes," submit proof of valid existing right.
- (2) Does the permit area included in this permit application include any area within one thousand feet of the waterlines of any wild, scenic, or recreational river dedicated pursuant to Chapter 1501., Ohio Revised Code? ___ Yes, X No. If "yes," submit proof of valid existing right.
- (3) Does the permit area included in this permit application include any area within the boundaries of the following systems: national park, national wildlife refuge, national trails, national wilderness preservation, national recreational areas, or wild and scenic rivers or river corridors, including those rivers under study? ___ Yes, X No. If "yes," submit proof of valid existing right.
- (4) Does the permit area included in this permit application include any federal lands within the boundaries of any national forest? ___ Yes, X No. If "yes," submit approval of the U.S. Secretary of Interior of proof of valid existing right.
- (5) Will operations in the permit area conducted under this permit adversely affect any publicly owned park or places included on the National Register of Historic Places? ___ Yes, X No. If "yes," submit joint approval from the chief and the federal, state, or local agency with jurisdiction over the park or places or proof of valid existing right.
- (6) Will operations in the permit area conducted under this permit affect land within one hundred feet of the outside right-of-way of a public roadway? ___ Yes, X No. If "yes," list the roadway(s) in the space below and submit Public Road Consent or proof of valid existing right.

- D. (7) Will operations in the permit area conducted under this permit affect land within three hundred feet of any occupied dwelling? ___ Yes, X No. If "yes," list the name of the owner(s) in the space below and submit Occupied Dwelling Consent or proof of valid existing right.
- (8) Will operations in the permit area conducted under this permit affect land within three hundred feet of any public building, school, church, community or institutional building, or public park? ___ Yes, X No. If "yes," submit proof of valid existing right.
- (9) Will operations in the permit area conducted under this permit affect land within one hundred feet of a cemetery? ___ Yes, X No. If "yes," submit proof of valid existing right or appropriate authorization to relocate the cemetery.
- (10) Will operations conducted during this permit result in the extension of any part of the pit within fifty feet of horizontal distance to any adjacent land or water in which the applicant does not own either the surface or mineral rights? ___ Yes, X No. If "yes," list below the name(s) of the adjacent owner(s) and submit 50-foot Consent.

E. AREAS WHERE MINING IS PROHIBITED OR LIMITED - Permit and Shadow Area

Are there areas within the proposed permit area, shadow area, or adjacent areas designated unsuitable for coal mining operations under rule 1501:13-3-07 of the Administrative Code or under study for designation in an administrative proceeding under this rule? ___ Yes, X No.

- (1) If "yes" to the item above, did the applicant make substantial legal and financial commitments in the proposed areas prior to January 4, 1977?
___ Yes, ___ No.
- (2) If "yes" to item (1) above, submit as an addendum to the permit application information supporting the assertions that the commitments were made prior to January 4, 1977.

F. PERMIT TERM AND EXTENT - Permit and Underground Workings

- (1) Anticipated/actual date for:
 - (a) Starting mining operations September, 2009
 - (b) Terminating mining operations May, 2010
- (2) Does the applicant propose a permit term in excess of five (5) years?
Yes, X No. If "yes," submit an addendum with the information required by 1501:13-4-03(E)(3), Ohio Administrative Code.
- (3) Indicate the following acreage figures:
 - (a) Total Acres N/A (Permit area)
 - (b) Total Acres 160.8 (Underground Workings)
- (4) Horizontal extent of underground workings over life of permit in acres:
 - (a) Full Coal Recovery N/A
 - (b) Room and Pillar 160.8 acres

G. PUBLIC NOTICE - Permit and Shadow Area

- (1) In the space below, provide the name and address of the public office where a complete copy of this permit application is to be filed.

**Belmont County Recorder's Office
Belmont County Courthouse
101 West Main Street
St. Clairsville, Ohio 43950**

- (2) In the space below, list the name and address of the newspaper and submit an addendum providing the text of the advertisement that is to be published in a newspaper of general circulation in the locality of the proposed operation.
Note: The advertisement is to provide the information required by paragraph (A) of rule 1501:13-5-01 of the Administrative Code.

**Times Leader
200 South 4th Street
Martins Ferry, Ohio 43935**

PROOF OF PUBLICATION

The State of Ohio
County of Belmont, ss:

The undersigned, being sworn, says that he or she is an employee of Eastern Ohio Newspapers, Inc., A Corporation, publisher of the Times Leader a newspaper published in Martins Ferry, Belmont County, Ohio, each day of the week and of general circulation in said city and county; that it is a newspaper meeting the requirements of sections 7.12 and 5721.01 Ohio Revised Code as amended effective September 24, 1957; that affiant has custody of the records and files of said newspaper; and that the advertisement of which the annexed is a true copy, was published in said newspaper on each of the days in the month and year stated, as follows:

June 5, 12, 19, 26

2008

Candace J. Criswell

Subscribed by Affiant and sworn to before me, this 26th day of June, A.D. 2008.

Rebecca L. Anderson

Notary Public



REBECCA L. ANDERSON
Notary Public, State of Ohio
My Commission Expires Nov. 25, 2011

Printer's Fee \$ 284.88

Notary's Fee \$ _____

The Times Leader
Martins Ferry, Ohio

Addendum to
Part 1, Item G(2)
American Energy
Corporation

Public Notice

American Energy Corporation, 43521 Mayhugh Hill Road, Beallsville, Ohio 43716, has submitted an adjacent area permit application numbered D-0425-10 to the Ohio Department of Natural Resources, Division of Mineral Resources Management. The proposed coal mining and reclamation operations will be in Sections 13, 14, 20, and 28, T-5 R-4, Washington Township, Belmont County, Ohio. The proposed adjacent area permit will encompass 389.2 acres and is located on the Armstrong Mills and Cameron 7 1/2 minute Quadrangle U.S.G.S. maps, approximately 2.8 miles southwest of Armstrong Mills, Ohio. This coal mining application will remove coal using the underground mining methods, specifically the room and pillar method. This application is on file at the Belmont County Courthouse, Recorder's Office, 101 West Main Street, St. Clairsville, Ohio 43950, for public inspection. Written comments, objections or requests for an informal conference may be sent to the Ohio Department of Natural Resources, Division of Mineral Resources Management, 2045 Morse Road, Building H-3, Columbus, Ohio 43229-6693 within thirty (30) days of the last date of publication of this notice.

TL Adv. - 4 Thurs. - June
5, 12, 19, 26

I hereby certify that
this is a true copy
of the original

Ellen M. Greer

ELLEN M. GREER, Notary Public
State of Ohio
My Commission Expires September 23, 2011

PART 2 ENVIRONMENTAL RESOURCES INFORMATION

A. CULTURAL, HISTORIC, AND ARCHEOLOGICAL INFORMATION - Permit and Planned Subsidence Area N/A

- (1) Are there any cultural or historic resources or structures listed or eligible for listing on the National Register of Historic Places within the proposed permit or planned subsidence area? ___ Yes, ___ No. If "yes," submit an addendum describing the resources and structures including the location and submit Archeology-Surface or Archeology-Underground as appropriate.
- (2) Are there any known archeological sites within the proposed permit or planned subsidence area? ___ Yes, ___ No. If "yes," submit an addendum describing the site including the location and submit Archeology-Surface or Archeology-Underground as appropriate.
- (3) If applicable, based upon the review of the proposed planned subsidence areas and the completed Archeology-Underground for the initial six months of projected mining, have any properties listed or eligible for listing on the National Register of Historic Places been identified? ___ Yes, ___ No. If "yes," submit an addendum listing each property identified.
- (4) Submit an addendum indicating the method to be used to identify historic properties on planned subsidence areas as mining progresses.

B. GEOLOGY DESCRIPTION - Permit and Shadow Area

- (1) Submit an addendum describing the geology within the proposed permit area and shadow area down to and including the first stratum below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely affected by mining. The description shall also include information on the areal and structural geology of the permit and shadow area and any other geologic parameters, which may influence the probable hydrologic consequences and protection of the hydrologic balance from material damage outside of the permit area.

See original Permit D-0425 and original addendum to Part 2, Page 16, Item B(1) Based on drill logs and projected coal structures, a local syncline exists to the northeast of the proposed mining operation. The syncline causes the local dip to the northeast. The undulatory folding present in the proposed shadow area is typical of that found in southeast Ohio. Additional #8 coal seam information known to the applicant indicates a general southeast dip of the #8 coal seam extending to the Ohio River, as indicated by USGS publication No. 106.

- (2) Submit an addendum describing how the areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially affected surface and ground waters per paragraph (C) of rule 1501:13-4-13 of the Administrative Code.

See original Permit D-0425 and original addendum to Part 2, Page 16, Item B(1)

- B. (3) For those areas to be affected by underground mining surface operations where removal of the overburden down to the level of the coal seam will occur, submit Drilling Report - Surface(s) as required by paragraphs (C)(2)(a) and (c) of rule 1501:13-4-13 of the Administrative Code. **N/A**
- (4) For those areas within the shadow area where the stratum above the coal seam to be mined will not be removed, submit Drilling Report - Underground(s) as required by paragraphs (C)(2)(d) and (e) of rule 1501:13-4-13 of the Administrative Code. **See Attachment 13's**

C. **GROUND WATER INFORMATION - Permit, Shadow Area, and Adjacent Area**

- (1) Submit Ground Water Description that describes the ground water hydrology of the proposed permit area, shadow area and adjacent area. The Ground Water Description is to include information on each water bearing stratum or zone as required by paragraph (D) of rule 1501:13-4-13 of the Administrative Code, including the first water bearing stratum below the coal to be mined.
- (2) Are there any wells on the proposed permit area, shadow area and adjacent area? X Yes, No. If "yes," submit Hydrologic Inventory.
- (3) Are there any springs on the proposed permit area, or developed springs on the shadow area and adjacent area? X Yes, No. If "yes," submit Hydrologic Inventory.
- (4) Are there any public water supply sources on the proposed permit area, shadow area, and adjacent area? Yes, X No. If "yes," submit Hydrologic Inventory, and show location on the hydrology map.
- (5) Submit Hydrologic Inventory for representative wells and developed springs as required by paragraph (D)(4) of rule 1501:13-4-13. Based on this data identify the seasonal variations of ground water quality and quantity.

D. **SURFACE WATER INFORMATION - Permit, Shadow Area, and Adjacent Area**

- (1) List the name of the watershed that will receive water discharges from the proposed permit, shadow, and adjacent areas as listed in the "Gazetteer of Ohio Streams" published by the Ohio Department of Natural Resources.

Captina Creek

- (2) Are there any perennial or intermittent streams or other surface water bodies on the proposed permit, shadow area and adjacent area? X Yes, No. If "yes," submit Hydrologic Inventory and show location on application and hydrology map.

342 High St., Box 471
Flushing, OH 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
e-mail: hamilton@1st.net
www.hamiltonandassoc.com



Civil Engineering
Land Surveying
Mine Permitting
GIS Data Services
Land Development
Global Positioning Systems

March 31, 2008

Mr. Michael Dillman
Ohio Department of Natural Resources
Division of Mineral Resources Management
2045 Morse Road, Bldg. H-2
Columbus, Ohio 43229-6693

Dear Sir:

A Test Hole Variance Request was submitted to the Ohio Department of Natural Resources, Division of Mineral Resources Management on February 18, 2008 for the proposed underground mining of 107.6 acres in the Pittsburgh No. 8 coal seam by American Energy Corporation. Pursuant to OAC 1501:13-4-13(C)(2)(e)(ii), one (1) test hole with geologic data and acid/base accounting was required.

Since the time of submitting this Test Hole Variance Request, changes in the mining plan and additional test hole drilling have occurred at this proposed underground mine workings. The proposed mining now encompasses 129.4 acres of coal removal. The proximity of test holes AEC-2008-05 and AEC-2008-08 to the revised mining plan should satisfy the aforementioned requirement of one (1) test hole per one hundred sixty (160) acres of coal removal.

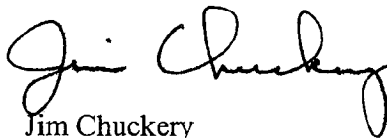
Please find enclosed a revised THVR map showing the additional test holes (highlighted yellow) and four (4) Attachment 13's with the geologic and acid/base accounting data.

If, upon review of this additional data, you agree that a THVR is not required then consider this letter as a formal withdrawal of the Test Hole Variance Request submitted on February 18, 2008.

Please contact me if you have any questions regarding this matter.

Sincerely,

JACK A. HAMILTON & ASSOCIATES, INC.
Consultants for American Energy Corporation



Jim Chuckery
Permitting

ATTACHMENT 13

DIAMOND DRILL HOLE: AEC 2000-04

Field Engineer: Kim Cecil
 Surface Elevation: 1,267.00
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 682,440
 Easting: 2,430,373
 Drilling Company: LJ Hughes and Sons, Inc.

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
23.00	0.00	23.00	Casing				0.00
14.00	23.00	37.00	Claystone, red/gy	YES	cv, ev		0.00
1.00	37.00	38.00	Core loss				0.00
2.30	38.00	40.30	Claystone, gy	YES	cv, ev		0.00
3.30	40.30	43.60	Shale, gy w/ ls nods		ak, cm, em		0.00
1.80	43.60	45.40	Shale, gy, broken		cv, ev		0.00
5.20	45.40	50.60	Shale, gy w/ ls nods		ak, cm, em		0.00
2.40	50.60	53.00	Claystone, red	YES	cv, ev		0.00
6.60	53.00	59.60	Claystone, red/gy	YES	cv, ev		0.00
5.40	59.60	65.00	Sandstone, gy w/ sh stks		cs, es	y	5.40
14.60	65.00	79.60	Shale, gy w/ ls nods		ak, cm, em		0.00
11.00	79.60	90.60	Claystone, red	YES	cv, ev		0.00
0.40	90.60	91.00	Core loss				0.00
11.50	91.00	102.50	Shale, red/gy		cm, em		0.00
0.50	102.50	103.00	Core loss				0.00
16.00	103.00	119.00	Shale, gy		cv, ev		0.00
0.20	119.00	119.20	Bone, WASHINGTON No. 12		ac, cv, ev		0.00
3.80	119.20	123.00	Shale, gy, limey		ak, cm, em		0.00
54.00	123.00	177.00	Shale, red/gy w/ ls nods		ak, cm, em		0.00
2.60	177.00	179.60	Limestone, nodular		ak, cs, es	y	2.60
7.40	179.60	187.00	Shale, gy w/ ls nods		ak, cm, em		0.00
3.30	187.00	190.30	Shale, red		cm, em		0.00
18.30	190.30	208.60	Shale, gy w/ ls nods		ak, cm, em		0.00
0.20	208.60	208.80	Shale, blk		ac, cm, em		0.00
5.60	208.80	214.40	Shale, gy, sandy w/ ls nods		ak, cs, es		0.00
25.55	214.40	239.95	Sandstone, gy w/ ss stks		cs, es	y	25.55
0.10	239.95	240.05	Shale, blk		ac, cm, em		0.00
3.10	240.05	243.15	Coal w/ shale stks, LITTLE WASHINGTON		ac, cv, ev		0.00
2.70	243.15	245.85	Claystone, gy		cv, ev		0.00
0.25	245.85	246.10	Core loss				0.00
16.30	246.10	262.40	Claystone, gy w/ ls nods		ak, cv, ev		0.00
0.60	262.40	263.00	Core loss				0.00
10.90	263.00	273.90	Shale, gy		cm, em		0.00
9.10	273.90	283.00	Shale, gy, sandy		cs, es		0.00
2.35	283.00	285.35	Shale, gy		cm, em		0.00
5.75	285.35	291.10	Coal, bony w/ sh stks WAYNESBURGH "A"		ac, cv, ev		0.00
0.65	291.10	291.75	Shale, gy w/ ls nods		ak, cm, em		0.00
1.00	291.75	292.75	Shale, blk, carb.		ac, cm, em		0.00
10.25	292.75	303.00	Shale, gy w/ ls nods		ak, cm, em		0.00
1.00	303.00	304.00	Shale, gy, sandy		cs, es		0.00
10.90	304.00	314.90	Shale, gy		cm, em		0.00
5.50	314.90	320.40	Sandstone, gy		cs, es	y	5.50
2.90	320.40	323.30	Shale, gy, sandy		cm, em		0.00
3.50	323.30	326.80	Sandstone w/ sh stks		cs, es	y	3.50
0.80	326.80	327.60	Claystone, gy		cv, ev		0.00
3.70	327.60	331.30	Limestone, nodular		ak, cs, es	y	3.70
1.40	331.30	332.70	Claystone, gy, soft		cv, ev		0.00
0.50	332.70	333.20	Shale, dk gy, soft		cm, em		0.00
2.30	333.20	335.50	Shale, gy, sandy		cm, em		0.00
5.60	335.50	341.10	Sandstone, gy		cs, es	y	5.60
4.90	341.10	346.00	Shale, gy, sandy		cm, em		0.00
5.30	346.00	351.30	Sandstone w/ sh stks		cs, es	y	5.30
1.30	351.30	352.60	Shale, gy w/ ss stks		cs, es		0.00
4.60	352.60	357.20	Shale, gy		cm, em		0.00
0.30	357.20	357.50	Shale, blk		ac, cm, em		0.00
1.00	357.50	358.50	Claystone, gy		cv, ev		0.00

DIAMOND DRILL HOLE: AEC 2000-04

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
4.50	358.50	363.00	Limestone, massive		ak, cs, es	y	4.50
3.80	363.00	366.80	Shale, gy w/ ls nods		ak, cm, em		0.00
10.60	366.80	377.40	Limestone		ak, cs, es	y	10.60
12.30	377.40	389.70	Shale, gy w/ ls nods		ak, cm, em		0.00
5.20	389.70	394.90	Shale, gy, sandy		cs, es		0.00
5.60	394.90	400.50	Shale, red/gy		cm, em		0.00
2.50	400.50	403.00	Limestone, nodular		ak, cs, es	y	2.50
20.00	403.00	423.00	Limestone w/ claystone parting		ak, cs, es	y	20.00
2.30	423.00	425.30	Limestone		ak, cs, es	y	2.30
11.80	425.30	437.10	Claystone, gy w/ ls nods		ak, cv, ev		0.00
5.90	437.10	443.00	Limestone, shaley		ak, cs, es	y	5.90
35.00	443.00	478.00	Limestone w/ sh layers		ak, cs, es	y	35.00
10.50	478.00	488.50	Shale, gy w/ ls nods		ak, cm, em		0.00
8.90	488.50	497.40	Limestone, shaley		ak, cs, es	y	8.90
3.00	497.40	500.40	Shale, gy w/ ls nods		ak, cm, em		0.00
2.05	500.40	502.45	Coal, bone, pyrite, SEWICKLEY No. 9		ac, cv, ev		0.00
22.35	502.45	524.80	Shale, gy		cm, em		0.00
1.60	524.80	526.40	Shale, dk gy, soft		cm, em		0.00
0.80	526.40	527.20	Claystone, gy		cv, ev		0.00
1.10	527.20	528.30	Coal w/ sh stks, FISHPOT		ac, cv, ev		0.00
0.90	528.30	529.20	Coal w/ pyrite		ac, cv, ev		0.00
19.90	529.20	549.10	Limestone, nodular		ak, cs, es	y	19.90
8.60	549.10	557.70	Shale, gy w/ ls nods		ak, cm, em		0.00
3.90	557.70	561.60	Limestone, shaley		ak, cs, es	y	3.90
2.20	561.60	563.80	Claystone, gy		cv, ev		0.00
0.60	563.80	564.40	Shale, blk w/ coal		ac, cm, em		0.00
0.80	564.40	565.20	Coal, bone, REDSTONE		ac, cv, ev		0.00
2.50	565.20	567.70	Shale, gy, limey		ak, cm, em		0.00
13.20	567.70	580.90	Limestone, nodular		ak, cs, es	y	13.20
6.20	580.90	587.10	Claystone, gy		cv, ev		0.00
1.60	587.10	588.70	Claystone, dk gy		cv, ev		0.00
0.60	588.70	589.30	Shale, blk, carb.		ac, cm, em		0.00
0.97	589.30	590.27	Coal w/ bone, ROOF COAL		ac, cv, ev		0.00
0.92	590.27	591.19	Shale, dk gy, soft		cm, em		0.00
3.97	591.19	595.16	Coal w/ sh stks, pyrite, PITTSBURGH No.8		ac, cv, ev		0.00
0.90	595.16	596.06	Bone w/ coal layers		ac, cv, ev		0.00
0.33	596.06	596.39	Coal w/ pyrite		ac, cv, ev		0.00
4.20	596.39	600.59	Claystone, gy w/ ls nods		ak, cv, ev		0.00
5.40	600.59	605.99	Shale, gy, sandy		cs, es		0.00
2.60	605.99	608.59	Claystone, gy		cv, ev		0.00
2.00	608.59	610.59	Shale, gy		cm, em		0.00
Total Depth			610.59				183.85

Acid Producing: ac

Alkaline Producing: ak

Compactible: c (v-very, m-moderate, s-slight)

Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit

183.85

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit

30%

	Thickness (Ft.)	Percent (%)
Hard Rock:	183.85	30%
Soft Rock:	426.74	70%
	610.59	

DIAMOND DRILL HOLE: AEC 2000-04

Thickness (ft.)	Depth From (ft.)	To (ft.) Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
--------------------	------------------------	--------------------	------------------	------------------------	----	------------------------------------

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

<u>Stratum</u>	Neutralization Potential, tons/1000 <u>tons as CaCO₃</u>	Total <u>Sulphur %</u>	Pyritic <u>Sulphur %</u>	Potential Acidity, tons /1000 tons as CaCO ₃ <u>(Total Sul.)</u>	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ <u>(Total Sul.)</u>
Roof, 10 ft.	278.84	2.94	2.64	91.92	-186.80
Coal	5.01	5.95	2.85	186.0	181.0
Bottom, 10 ft.	164.00	3.32	3.17	103.85	-60.1

ATTACHMENT 13

DIAMOND DRILL HOLE: AEC 2001-02

Field Engineer: Kim Cecil
 Surface Elevation: 1,238.55
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 684,949
 Easting: 2,425,410
 Drilling Company: LJ Hughes and Sons, Inc.

Thickness (ft.)	Depth From (ft.)	To (ft.) Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
22.00	0.00	22.00 Casing				0.00
1.30	22.00	23.30 Shale, gy	YES	cm, em		0.00
1.30	23.30	24.60 Claystone, gy, soft	YES	cv, ev		0.00
0.60	24.60	25.20 Shale, gy		cm, em		0.00
3.20	25.20	28.40 Limestone, massive	YES	ak, cs, es	y	3.20
16.10	28.40	44.50 Shale, red/gy w/ ls nods		ak, cm, em		0.00
2.40	44.50	46.90 Shale, gy, sandy w/ ls nods		ak, cs, es		0.00
4.60	46.90	51.50 Sandstone, gy	YES	cs, es	y	4.60
3.80	51.50	55.30 Shale, gy w/ ls nods		ak, cm, em		0.00
7.70	55.30	63.00 Claystone, red		cv, ev		0.00
33.50	63.00	96.50 Shale, red/gy	YES	cm, em		0.00
6.50	96.50	103.00 Claystone, gy w/ ls nods		ak, cv, ev		0.00
20.00	103.00	123.00 Claystone, red/gy w/ ls nods		ak, cv, ev		0.00
20.00	123.00	143.00 Shale, gy w/ ls nods		ak, cm, em		0.00
4.10	143.00	147.10 Claystone, red/gy		cv, ev		0.00
3.30	147.10	150.40 Limestone, nodular		ak, cs, es	y	3.30
1.00	150.40	151.40 Claystone, gy		cv, ev		0.00
0.40	151.40	151.80 Limestone		ak, cs, es	y	0.40
5.80	151.80	157.60 Claystone, gy		cv, ev		0.00
3.90	157.60	161.50 Shale, red/gy		cm, em		0.00
1.50	161.50	163.00 Shale, gy, sandy		cs, es		0.00
15.50	163.00	178.50 Shale, gy		cm, em		0.00
4.50	178.50	183.00 Claystone, gy		cv, ev		0.00
20.00	183.00	203.00 Shale, gy		cm, em		0.00
4.90	203.00	207.90 Claystone, gy		cv, ev		0.00
1.00	207.90	208.90 Shale, dk gy		cm, em		0.00
0.90	208.90	209.80 Shale, blk		ac, cm, em		0.00
2.65	209.80	212.45 Coal w/ pyrite, WASHINGTON No. 12		ac, cv, ev		0.00
0.55	212.45	213.00 Shale, gy w/ coal stks		ac, cv, ev		0.00
0.20	213.00	213.20 Coal w/ bone stks		ac, cv, ev		0.00
0.30	213.20	213.50 Shale, dk gy w/ coal stks		ac, cv, ev		0.00
0.95	213.50	214.45 Coal		ac, cv, ev		0.00
0.30	214.45	214.75 Shale, blk		ac, cm, em		0.00
14.00	214.75	228.75 Claystone, gy		cv, ev		0.00
12.00	228.75	240.75 Shale, gy		cm, em		0.00
4.50	240.75	245.25 Shale, gy, sandy		cs, es		0.00
1.20	245.25	246.45 Shale, gy		cm, em		0.00
6.10	246.45	252.55 Shale, dk gy		cm, em		0.00
7.00	252.55	259.55 Coal w/ pyrite and sh stks, LITTLE WASHINGTON		ac, cv, ev		0.00
0.40	259.55	259.95 Limestone, nodular		ak, cs, es	y	0.40
0.35	259.95	260.30 Shale, gy w/ ls nods		ak, cm, em		0.00
0.75	260.30	261.05 Shale, blk		ac, cm, em		0.00
0.80	261.05	261.85 Limestone		ak, cs, es	y	0.80
0.70	261.85	262.55 Claystone, gy		cv, ev		0.00
0.70	262.55	263.25 Limestone, nodular		ak, cs, es	y	0.70
6.30	263.25	269.55 Claystone, gy w/ ls nods		ak, cv, ev		0.00
5.20	269.55	274.75 Sandstone, gy, massive		cs, es	y	5.20
5.50	274.75	280.25 Shale, gy, sandy		cs, es		0.00
3.20	280.25	283.45 Shale, gy		cm, em		0.00
1.70	283.45	285.15 Shale, gy, sandy w/ ls nods		ak, cs, es		0.00
4.10	285.15	289.25 Sandstone, gy		cs, es	y	4.10
4.00	289.25	293.25 Shale, gy, sandy		cs, es		0.00
1.30	293.25	294.55 Shale, gy		cm, em		0.00
1.50	294.55	296.05 Shale, dk gy		cm, em		0.00
0.90	296.05	296.95 Shale, gy w/ ls nods		ak, cm, em		0.00
4.70	296.95	301.65 Claystone, dk gy		cv, ev		0.00

DIAMOND DRILL HOLE: AEC 2001-02

Thickness (ft.)	Depth From (ft.)	To (ft.) Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.70	301.65	302.35 Shale, blk		ac, cm, em		0.00
0.20	302.35	302.55 Shale, dk gy		ac, cm, em		0.00
7.80	302.55	310.35 Shale, gy		cm, em		0.00
6.10	310.35	316.45 Shale, gy, sandy		cs, es		0.00
5.10	316.45	321.55 Shale, gy		cm, em		0.00
0.20	321.55	321.75 Coal w/ pyrite, WAYNESBURGH No. 11		ac, cv, ev		0.00
0.60	321.75	322.35 Shale, gy		cm, em		0.00
1.80	322.35	324.15 Shale, gy w/ ls nods		ak, cm, em		0.00
2.30	324.15	326.45 Limestone, nodular		ak, cs, es	y	2.30
3.80	326.45	330.25 Claystone, gy, w/ ls nods		ak, cv, ev		0.00
12.10	330.25	342.35 Limestone w/ sh layers		ak, cs, es	y	12.10
16.00	342.35	358.35 Claystone, gy w/ ls nods		ak, cv, ev		0.00
3.20	358.35	361.55 Shale, red/gy w/ ls nods		ak, cm, em		0.00
1.20	361.55	362.75 Limestone		ak, cs, es	y	1.20
3.60	362.75	366.35 Claystone, gy		cv, ev		0.00
1.20	366.35	367.55 Limestone, shaley		ak, cs, es	y	1.20
2.00	367.55	369.55 Claystone, gy w/ ls nods		ak, cv, ev		0.00
0.50	369.55	370.05 Limestone, nodular		ak, cs, es	y	0.50
2.00	370.05	372.05 Shale, gy		cm, em		0.00
1.20	372.05	373.25 Core loss				0.00
41.10	373.25	414.35 Limestone w/ sh layers		ak, cs, es	y	41.10
21.10	414.35	435.45 Limestone, shale, nodular		ak, cs, es	y	21.10
19.00	435.45	454.45 Limestone w/ sh layers		ak, cs, es	y	19.00
2.70	454.45	457.15 Shale, gy, limey		ak, cm, em		0.00
0.60	457.15	457.75 Shale, dk gy		cm, em		0.00
0.20	457.75	457.95 Shale, blk		ac, cm, em		0.00
0.90	457.95	458.85 Coal, SEWICKELY No. 9		ac, cv, ev		0.00
0.70	458.85	459.55 Shale, dk gy w/ coal		ac, cm, em		0.00
8.50	459.55	468.05 Shale, gy		cm, em		0.00
5.40	468.05	473.45 Shale, gy, sandy		cs, es		0.00
5.70	473.45	479.15 Shale, gy		cm, em		0.00
10.40	479.15	489.55 Sandstone w/ sh stks		cs, es	y	10.40
1.40	489.55	490.95 Shale, gy		cm, em		0.00
1.00	490.95	491.95 Coal w/ bone layers, FISHPOT		ac, cv, ev		0.00
0.35	491.95	492.30 Coal / shale layers		ac, cv, ev		0.00
0.90	492.30	493.20 Coal w/ pyrite		ac, cv, ev		0.00
19.65	493.20	512.85 Limestone, nodular		ak, cs, es	y	19.65
6.50	512.85	519.35 Shale, gy, sandy		cs, es		0.00
4.90	519.35	524.25 Shale, gy		cm, em		0.00
3.20	524.25	527.45 Limestone, massive		ak, cs, es	y	3.20
1.50	527.45	528.95 Claystone, gy		cv, ev		0.00
1.50	528.95	530.45 Claystone, dk gy		cv, ev		0.00
3.40	530.45	533.85 Shale, gy w/ ls nods		ak, cm, em		0.00
13.70	533.85	547.55 Limestone, nodular		ak, cs, es	y	13.70
5.40	547.55	552.95 Claystone, gy		cv, ev		0.00
0.25	552.95	553.20 Shale, dk gy		cm, em		0.00
0.50	553.20	553.70 Claystone, gy, soft		cv, ev		0.00
0.95	553.70	554.65 Claystone, gy		cv, ev		0.00
0.64	554.65	555.29 Coal w/ bone and sh stks, ROOF COAL		ac, cv, ev		0.00
0.70	555.29	555.99 Claystone, gy		cv, ev		0.00
2.06	555.99	558.05 Coal w/ pyrite, PITTSBURGH No.8		ac, cv, ev		0.00
1.21	558.05	559.26 Coal w/ bone		ac, cv, ev		0.00
2.08	559.26	561.34 Coal w/ sh layers		ac, cv, ev		0.00
1.87	561.34	563.21 Claystone, dk gy		cv, ev		0.00
2.60	563.21	565.81 Claystone, gy		cv, ev		0.00
5.50	565.81	571.31 Shale, gy, sandy		cs, es		0.00
9.80	571.31	581.11 Sandstone w/ sh stks		cs, es	y	9.80
Total Depth		581.11				177.95

Acid Producing: ac

Alkaline Producing: ak

Compactable: c (v-very, m-moderate, s-slight)

Erodible: e (v-very, m-moderate, s-slight)

ATTACHMENT 13

DIAMOND DRILL HOLE: AEC 2001-02

Thickness (ft.)	Depth From (ft.)	To (ft.) Strata	Water Bearing	Physical Properties	Thickness of Hard Rock HR (ft.)
Total Thickness of Hard Rock Overlying Mining Unit					177.95
Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit					31%
	Thickness (Ft.)	Percent (%)			
Hard Rock:	177.95	31%			
Soft Rock:	403.16	69%			
	581.11				

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	148.21	2.44	2.22	76.26	-71.95
Coal	4.74	5.44	2.92	170.0	165.3
Bottom, 10 ft.	156.50	3.64	3.40	113.55	-43.0

ATTACHMENT 13

DIAMOND DRILL HOLE:CLC-2002-04

Field Engineer: Kim Cecil
 Surface Elevation: 1,245
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 684,270
 Easting: 2,427,520
 Drilling Company: Kerogen Resources, Inc.

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
16.00	0.00	16.00	Casing				0.00
0.30	16.00	16.30	Limestone, shaley, nodular	yes	ak, cs, es	y	0.30
0.60	16.30	16.90	Claystone, gy, ls nods		ak, cv, ev		0.00
0.50	16.90	17.40	Limestone, shaley, nodular		ak, cs, es	y	0.50
3.10	17.40	20.50	Claystone, gy	yes	cv, ev		0.00
1.90	20.50	22.40	Shale, gy	yes	cm, em		0.00
0.65	22.40	23.05	Claystone, gy		cv, ev		0.00
2.55	23.05	25.60	Limestone, shaley, nodular		ak, cs, es	y	2.55
1.25	25.60	26.85	Shale, gy, ls nods		ak, cm, em		0.00
1.95	26.85	28.80	Claystone, gy, ls nods		ak, cv, ev		0.00
2.90	28.80	31.70	Shale, red/ gy/ gn, ls nods		ak, cm, em		0.00
1.30	31.70	33.00	Claystone, red, ls nods		ak, cv, ev		0.00
2.50	33.00	35.50	Claystone, gn, ls nods		ak, cv, ev		0.00
1.10	35.50	36.60	Shale, gn, ss stks, ls nods		ak, cs, es		0.00
4.50	36.60	41.10	Shale, gn, ls nods		ak, cm, em		0.00
2.90	41.10	44.00	Claystone, gy, ls nods		ak, cv, ev		0.00
7.00	44.00	51.00	Sandstone, gy, sh stks		cs, es		0.00
2.90	51.00	53.90	Shale, gy, sandy, massive		ak, cs, es		0.00
2.40	53.90	56.30	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.75	56.30	59.05	Claystone, red/ gy/ gn		cv, ev		0.00
4.25	59.05	63.30	Claystone, red		cv, ev		0.00
1.80	63.30	65.10	Claystone, red/ gy/ gn		cv, ev		0.00
2.80	65.10	67.90	Claystone, gn, ls nods		ak, cv, ev		0.00
3.00	67.90	70.90	Claystone, gn, sandy, ls nods		ak, cv, ev		0.00
4.85	70.90	75.75	Shale, gy, sandy, massive, ls nods		ak, cs, es		0.00
0.35	75.75	76.10	Claystone, red, ls nods		ak, cv, ev		0.00
4.25	76.10	80.35	Shale, gy, sandy, massive, ls nods		ak, cs, es		0.00
1.45	80.35	81.80	Shale, gy, ls nods		ak, cm, em		0.00
2.70	81.80	84.50	Shale, gy, ls nods		ak, cm, em		0.00
0.75	84.50	85.25	Shale, red, ls nods		ak, cm, em		0.00
1.15	85.25	86.40	Shale, red/ gy/ gn, ls nods		ak, cm, em		0.00
1.80	86.40	88.20	Claystone, gy, ls nods		ak, cv, ev		0.00
1.45	88.20	89.65	Shale, gy, ls nods		ak, cm, em		0.00
0.55	89.65	90.20	Claystone, gy, ls nods		ak, cv, ev		0.00
4.10	90.20	94.30	Shale, red, ls nods		ak, cm, em		0.00
2.45	94.30	96.75	Shale, red		cm, em		0.00
3.80	96.75	100.55	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.35	100.55	100.90	Limestone, shaley, nodular		ak, cs, es	y	0.35
1.15	100.90	102.05	Limestone, nodular		ak, cs, es	y	1.15
0.95	102.05	103.00	Limestone, shaley, nodular		ak, cs, es	y	0.95
0.80	103.00	103.60	Claystone, red/ gy/ gn, ls nods		ak, cv, ev		0.00
1.80	103.60	105.40	Claystone, red, ls nods		ak, cv, ev		0.00
1.40	105.40	106.80	Shale, red		cm, em		0.00
1.10	106.80	107.90	Claystone, gy, ls nods		ak, cv, ev		0.00
0.50	107.90	108.40	Limestone, massive		ak, cs, es	y	0.50
3.85	108.40	112.25	Shale, gy, ls nods		ak, cm, em		0.00
0.75	112.25	113.00	Claystone, red/ gy/ gn		cv, ev		0.00
7.10	113.00	120.10	Claystone, red		cv, ev		0.00
0.50	120.10	120.60	Claystone, red/ gy/ gn		cv, ev		0.00
2.85	120.60	123.45	Sandstone, gy, massive, ls nods		ak, cs, es	y	2.85
1.90	123.45	125.35	Claystone, gn, ls nods		ak, cv, ev		0.00
0.75	125.35	126.10	Claystone, red/ gy/ gn, ls nods		ak, cv, ev		0.00
1.35	126.10	127.45	Claystone, gn, ls nods		ak, cv, ev		0.00
1.30	127.45	128.75	Shale, gy, sandy, massive, ls nods		ak, cs, es		0.00
0.60	128.75	129.35	Claystone, red/ gy/ gn, ls nods		ak, cv, ev		0.00
1.75	129.35	131.10	Shale, dk gy, ls nods		ak, cm, em		0.00
0.80	131.10	131.90	Claystone, red/ gy/ gn, ls nods		ak, cv, ev		0.00
1.20	131.90	133.10	Shale, gn		cm, em		0.00
2.55	133.10	135.65	Limestone, shaley, nodular		ak, cs, es	y	2.55
1.95	135.65	137.60	Claystone, red/ gy/ gn, ls nods		ak, cv, ev		0.00
1.90	137.60	139.50	Shale, gy, ls nods		ak, cm, em		0.00
1.30	139.50	140.80	Claystone, red		cv, ev		0.00
1.00	140.80	141.80	Limestone, shaley, nodular		ak, cs, es	y	1.00
1.10	141.80	142.90	Shale, dk gy, ls nods		ak, cm, em		0.00
2.50	142.90	145.40	Shale, gy, sandy, massive		ak, cs, es		0.00
1.90	145.40	147.30	Shale, red/ gy/ gn		cm, em		0.00
0.20	147.30	147.50	Limestone, shaley, nodular		ak, cs, es	y	0.20
3.35	147.50	150.85	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.85	150.85	151.70	Claystone, dk gy		cv, ev		0.00
1.20	151.70	152.90	Shale, dk gy, ls nods		ak, cm, em		0.00
2.90	152.90	155.80	Limestone, shaley, nodular		ak, cs, es	y	2.90
3.05	155.80	158.85	Limestone, massive		ak, cs, es	y	3.05

ATTACHMENT 13

DIAMOND DRILL HOLE:CLC-2002-04

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.55	158.65	159.40	Claystone, gy, ls nods		ak, cv, ev		0.00
4.90	159.40	164.30	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
0.45	164.30	164.75	Claystone, red/ gy/ gn, ls nods		ak, cv, ev		0.00
0.65	164.75	165.40	Shale, gy, ls nods		ak, cm, em		0.00
0.85	165.40	166.25	Shale, red		cm, em		0.00
1.35	166.25	167.60	Shale, red/ gy/ gn		cm, em		0.00
6.70	167.60	174.30	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	174.30	174.90	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
1.80	174.90	176.70	Shale, dk gy, ls nods		ak, cm, em		0.00
0.35	176.70	177.05	Sandstone, gy, massive		cs, es	y	0.35
2.15	177.05	179.20	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
0.90	179.20	180.10	Sandstone, gy, xbed		cs, es		0.00
2.25	180.10	182.35	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
1.30	182.35	183.65	Sandstone, gy, sh stks, ls nods		ak, cs, es		0.00
1.75	183.65	185.40	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
6.85	185.40	192.25	Shale, dk gy, ls nods		ak, cm, em		0.00
4.25	192.25	196.50	Limestone, shaley, nodular		ak, cs, es	y	4.25
0.50	196.50	197.00	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
4.15	197.00	201.15	Shale, gy, ls nods		ak, cm, em		0.00
4.55	201.15	205.70	Shale, dk gy, ls nods		ak, cm, em		0.00
3.80	205.70	209.50	Shale, blk		ac, cm, em		0.00
0.23	209.50	209.73	Coal w/ sh layers, Washington No.12		ac, cv, ev		0.00
0.19	209.73	209.92	Coal w/ bone stks		ac, cv, ev		0.00
0.06	209.92	209.98	Coal w/ sh layers		ac, cv, ev		0.00
0.08	209.98	210.06	Shale, blk, coal stks		ac, cm, em		0.00
0.04	210.06	210.10	Coal w/ bone stks		ac, cv, ev		0.00
0.28	210.10	210.38	Coal w/ sh layers		ac, cv, ev		0.00
0.37	210.38	210.75	Shale, blk, coal stks		ac, cm, em		0.00
0.39	210.75	211.14	Coal w/ bone stks		ac, cv, ev		0.00
0.85	211.14	211.99	Coal w/ sh layers		ac, cv, ev		0.00
0.26	211.99	212.25	Shale, blk		ac, cm, em		0.00
0.21	212.25	212.46	Shale, blk, coal stks		ac, cm, em		0.00
0.29	212.46	212.75	Shale, dk gy		ac, cm, em		0.00
0.28	212.75	213.03	Coal w/ bone stks		ac, cv, ev		0.00
0.03	213.03	213.06	Shale, blk		ac, cm, em		0.00
0.64	213.06	213.70	Coal w/ bone stks		ac, cv, ev		0.00
0.04	213.70	213.74	Coal w/ sh layers		ac, cv, ev		0.00
28.96	213.74	242.70	Claystone, gy, ls nods		ak, cv, ev		0.00
1.20	242.70	243.90	Shale, gy, ss stks		cs, es		0.00
4.45	243.90	248.35	Sandstone, gy, xbed		cs, es	y	4.45
0.40	248.35	248.75	Sandstone, gy, sh stks		cs, es	y	0.40
1.40	248.75	250.15	Sandstone, gy, sh stks, ls nods		ak, cs, es	y	1.40
2.95	250.15	253.10	Shale, gy, ss layers		cs, es		0.00
0.45	253.10	253.55	Sandstone, gy, sh stks		cs, es	y	0.45
1.85	253.55	255.40	Shale, gy, ss stks, ls nods		ak, cs, es	y	1.85
2.55	255.40	257.95	Shale, gy, ls nods		ak, cm, em		0.00
0.11	257.95	258.06	Shale, blk		ac, cm, em		0.00
0.73	258.06	258.79	Coal w/ bone stks, Waynesburg "A"		ac, cv, ev		0.00
0.12	258.79	258.91	Bone w/ coal stks		ac, cv, ev		0.00
0.14	258.91	259.05	Coal w/ bone stks		ac, cv, ev		0.00
0.11	259.05	259.16	Coal w/ sh layers		ac, cv, ev		0.00
0.21	259.16	259.37	Shale, blk, coal stks		ac, cm, em		0.00
0.30	259.37	259.67	Coal w/ sh layers		ac, cv, ev		0.00
0.61	259.67	260.28	Coal w/ bone stks		ac, cv, ev		0.00
0.08	260.28	260.36	Shale, blk, coal stks		ac, cm, em		0.00
0.33	260.36	260.69	Coal w/ sh layers		ac, cv, ev		0.00
0.21	260.69	260.90	Coal w/ bone stks		ac, cv, ev		0.00
0.16	260.90	261.06	Coal w/ sh layers		ac, cv, ev		0.00
0.33	261.06	261.39	Coal w/ bone stks		ac, cv, ev		0.00
0.11	261.39	261.50	Shale, blk, coal stks		ac, cm, em		0.00
0.50	261.50	262.00	Coal w/ sh layers		ac, cv, ev		0.00
0.89	262.00	262.89	Coal w/ bone stks		ac, cv, ev		0.00
0.16	262.89	263.05	Shale, blk		ac, cm, em		0.00
0.75	263.05	263.80	Coal w/ bone stks		ac, cv, ev		0.00
0.34	263.80	264.14	Coal w/ sh layers		ac, cv, ev		0.00
0.09	264.14	264.23	Shale, blk, coal stks		ac, cm, em		0.00
0.67	264.23	264.90	Shale, dk gy		cm, em		0.00
0.47	264.90	265.37	Claystone, blk		ac, cv, ev		0.00
0.53	265.37	265.90	Shale, blk		ac, cm, em		0.00
7.20	265.90	273.10	Shale, gy, ls nods		ak, cm, em		0.00
6.20	273.10	279.30	Shale, gn, ls nods		ak, cm, em		0.00
0.70	279.30	280.00	Shale, gy, ss stks		cs, es		0.00
0.95	280.00	280.95	Sandstone, gy, sh stks, ls nods		ak, cs, es	y	0.95
1.30	280.95	282.25	Shale, gy, ss layers, ls nods		ak, cs, es		0.00
1.05	282.25	283.30	Sandstone, gy, sh stks		cs, es	y	1.05
0.90	283.30	284.20	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
2.80	284.20	287.00	Sandstone, gy, massive		cs, es	y	2.80
2.15	287.00	289.15	Claystone, gn, ls nods		ak, cv, ev		0.00
1.55	289.15	290.70	Shale, gy, ss layers		cs, es		0.00
2.65	290.70	293.35	Sandstone, gy, sh stks		cs, es	y	2.65
2.20	293.35	295.55	Shale, gy, ss layers		cs, es		0.00
1.40	295.55	296.95	Shale, gy, ss stks		cs, es		0.00

DIAMOND DRILL HOLE:CLC-2002-04

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
2.80	296.95	299.75	Shale, dk gy, ls nods		ak, cm, em		0.00
0.30	299.75	300.05	Limestone, shaley, nodular		ak, cs, es	y	0.30
2.55	300.05	302.60	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.80	302.60	305.40	Shale, gy, ss stks		cs, es		0.00
0.35	305.40	305.75	Shale, dk gy		cm, em		0.00
0.59	305.75	306.34	Shale, blk		ac, cm, em		0.00
0.10	306.34	306.44	Shale, blk, coal stks		ac, cm, em		0.00
0.21	306.44	306.65	Shale, blk		ac, cm, em		0.00
0.55	306.65	307.20	Claystone, dk gy		cv, ev		0.00
2.30	307.20	309.50	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
3.40	309.50	312.90	Shale, gy, ss layers, ls nods		ak, cs, es		0.00
2.20	312.90	315.10	Shale, gy, ls nods		ak, cm, em		0.00
0.20	315.10	315.30	Shale, dk gy, ss stks		cs, es		0.00
0.90	315.30	316.20	Shale, dk gy		cm, em		0.00
0.60	316.20	316.80	Shale, dk gy, ss layers		cs, es		0.00
2.45	316.80	319.25	Shale, dk gy, ss stks		cs, es		0.00
1.00	319.25	320.25	Shale, dk gy		cm, em		0.00
6.00	320.25	326.25	Shale, dk gy, ss layers		cs, es		0.00
2.10	326.25	328.35	Shale, dk gy		cm, em		0.00
0.19	328.35	328.54	Bone w/ coal layers, Waynesburg No.11		ac, cv, ev		0.00
0.10	328.54	328.64	Coal w/ bone stks		ac, cv, ev		0.00
0.08	328.64	328.72	Shale, dk gy		cm, em		0.00
2.18	328.72	330.90	Shale, dk gy, ls nods		ak, cm, em		0.00
2.70	330.90	333.60	Limestone, nodular		ak, cs, es	y	2.70
4.20	333.60	337.80	Shale, gy, ls nods		ak, cm, em		0.00
1.30	337.80	339.10	Limestone, nodular		ak, cs, es	y	1.30
1.90	339.10	341.00	Limestone, mosaic		ak, cs, es	y	1.90
2.55	341.00	343.55	Shale, gy, ls nods		ak, cm, em		0.00
1.20	343.55	344.75	Limestone, nodular		ak, cs, es	y	1.20
5.35	344.75	350.10	Shale, gy, ls nods		ak, cm, em		0.00
1.10	350.10	351.20	Limestone, shaley, nodular		ak, cs, es	y	1.10
1.45	351.20	352.65	Limestone, nodular		ak, cs, es	y	1.45
0.80	352.65	353.45	Claystone, gn, ls nods		ak, cv, ev		0.00
0.60	353.45	354.05	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.35	354.05	354.40	Shale, blk		ac, cm, em		0.00
0.50	354.40	354.90	Shale, dk gy, ls nods		ak, cm, em		0.00
1.60	354.90	356.50	Claystone, gy		cv, ev		0.00
1.60	356.50	358.10	Sandstone, gy, massive		cs, es	y	1.60
1.10	358.10	359.20	Sandstone, gy, sh stks		cs, es	y	1.10
0.90	359.20	360.10	Shale, gy, ss stks		cs, es		0.00
0.85	360.10	360.95	Sandstone, gy, sh stks		cs, es	y	0.85
1.65	360.95	362.60	Shale, gy, ls nods		ak, cm, em		0.00
0.40	362.60	363.00	Shale, red/ gy/ gn		cm, em		0.00
1.45	363.00	364.45	Shale, red		cm, em		0.00
0.50	364.45	364.95	Shale, red/ gy/ gn		cm, em		0.00
0.45	364.95	365.40	Limestone, nodular		ak, cs, es	y	0.45
0.90	365.40	366.30	Shale, dk gy, ls nods		ak, cm, em		0.00
1.15	366.30	367.45	Limestone, nodular		ak, cs, es	y	1.15
4.05	367.45	371.50	Shale, dk gy, ls nods		ak, cm, em		0.00
1.10	371.50	372.60	Limestone, nodular		ak, cs, es	y	1.10
2.60	372.60	375.20	Claystone, gn, ls nods		ak, cv, ev		0.00
2.10	375.20	377.30	Shale, gy, ls nods		ak, cm, em		0.00
2.30	377.30	379.60	Limestone, shaley, nodular		ak, cs, es	y	2.30
1.90	379.60	381.50	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.70	381.50	382.20	Limestone, nodular		ak, cs, es	y	0.70
2.35	382.20	384.55	Shale, dk gy, ls nods		ak, cm, em		0.00
3.35	384.55	387.90	Limestone, nodular		ak, cs, es	y	3.35
1.80	387.90	389.70	Limestone, shaley, nodular		ak, cs, es	y	1.80
0.95	389.70	390.65	Limestone, massive		ak, cs, es	y	0.95
1.75	390.65	392.40	Shale, gy, ls nods		ak, cm, em		0.00
0.90	392.40	393.30	Limestone, shaley, nodular		ak, cs, es	y	0.90
0.60	393.30	393.90	Limestone, massive		ak, cs, es	y	0.60
1.50	393.90	395.40	Claystone, gy, ls nods		ak, cv, ev		0.00
1.70	395.40	397.10	Limestone, shaley, nodular		ak, cs, es	y	1.70
8.70	397.10	405.80	Claystone, gn, ls nods		ak, cv, ev		0.00
2.15	405.80	407.95	Limestone, nodular		ak, cs, es	y	2.15
0.45	407.95	408.40	Shale, dk gy, ls nods		ak, cm, em		0.00
0.70	408.40	409.10	Limestone, shaley, nodular		ak, cs, es	y	0.70
1.50	409.10	410.60	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.90	410.60	412.50	Limestone, shaley, nodular		ak, cs, es		0.00
1.50	412.50	414.45	Shale, gn, ls nods		ak, cm, em		0.00
1.05	414.45	415.50	Limestone, massive		ak, cs, es	y	1.05
4.50	415.50	420.00	Limestone, shaley, nodular		ak, cs, es	y	4.50
2.40	420.00	422.40	Limestone, massive		ak, cs, es	y	2.40
10.50	422.40	432.90	Limestone, shaley, nodular		ak, cs, es	y	10.50
3.60	432.90	436.50	Claystone, gy, ls nods		ak, cv, ev		0.00
5.80	436.50	442.30	Limestone, massive		ak, cs, es	y	5.80
2.00	442.30	444.30	Limestone, sh layers		ak, cs, es	y	2.00
1.15	444.30	445.45	Limestone, shaley, nodular		ak, cs, es	y	1.15
0.90	445.45	446.35	Shale, gy, ls nods		ak, cm, em		0.00
1.70	446.35	448.05	Limestone, shaley, nodular		ak, cs, es	y	1.70
0.95	448.05	449.00	Shale, gy, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE:CLC-2002-04

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.10	449.00	450.10	Limestone, nodular		ak, cs, es	y	1.10
2.70	450.10	452.80	Limestone, shaley, nodular		ak, cs, es	y	2.70
2.50	452.80	455.30	Shale, gy, ls nods		ak, cm, em		0.00
0.70	455.30	456.00	Limestone, shaley, nodular		ak, cs, es	y	0.70
0.95	456.00	456.95	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.21	456.95	457.16	Shale, blk, coal stks, Sewickley No.9		ac, cm, em		0.00
0.18	457.16	457.34	Coal w/ pyrite		ac, cv, ev		0.00
0.20	457.34	457.54	Coal w/ bone stks		ac, cv, ev		0.00
0.04	457.54	457.58	Shale, blk, coal stks		ac, cm, em		0.00
0.06	457.58	457.64	Coal w/ bone stks		ac, cv, ev		0.00
2.31	457.64	459.95	Claystone, dk gy, ls nods		ak, cv, ev		0.00
6.80	459.95	466.75	Shale, dk gy		cm, em		0.00
4.75	466.75	471.50	Shale, gy, ss stks, ls nods		ak, cs, es		0.00
3.10	471.50	474.60	Sandstone, gy, sh stks		cs, es	y	3.10
1.80	474.60	476.40	Shale, dk gy, ss stks, ls nods		ak, cs, es		0.00
11.40	476.40	487.80	Sandstone, gy, sh stks		cs, es	y	11.40
0.95	487.80	488.75	Shale, dk gy		cm, em		0.00
0.09	488.75	488.84	Shale, blk, coal stks		ac, cm, em		0.00
0.56	488.84	489.40	Claystone, dk gy		cv, ev		0.00
1.47	489.40	490.87	Shale, dk gy, ss stks		cs, es		0.00
1.23	490.87	492.10	Shale, dk gy		cm, em		0.00
0.16	492.10	492.26	Coal w/ bone stks, Fishpot		ac, cv, ev		0.00
0.08	492.26	492.34	Shale, blk, coal stks		ac, cm, em		0.00
0.47	492.34	492.81	Coal w/ bone stks		ac, cv, ev		0.00
0.04	492.81	492.85	Shale, dk gy		cm, em		0.00
0.03	492.85	492.88	Shale, blk, coal stks		ac, cm, em		0.00
0.05	492.88	492.93	Coal w/ sh layers		ac, cv, ev		0.00
0.10	492.93	493.03	Shale, blk, coal stks		ac, cm, em		0.00
0.11	493.03	493.14	Coal w/ bone stks		ac, cv, ev		0.00
0.05	493.14	493.19	Coal w/ sh layers		ac, cv, ev		0.00
0.19	493.19	493.38	Shale, dk gy		cm, em		0.00
0.46	493.38	493.84	Coal		ac, cv, ev		0.00
0.38	493.84	494.22	Shale, blk, coal stks		ac, cm, em		0.00
0.78	494.22	495.00	Shale, dk gy, ls nods		ak, cm, em		0.00
0.70	495.00	495.70	Limestone, shaley, nodular		ak, cs, es	y	0.70
1.10	495.70	496.80	Limestone, nodular		ak, cs, es	y	1.10
0.80	496.80	497.60	Limestone, mosaic		ak, cs, es	y	0.80
0.50	497.60	498.10	Limestone, shaley, nodular		ak, cs, es	y	0.50
1.45	498.10	499.55	Limestone, mosaic		ak, cs, es	y	1.45
0.60	499.55	500.15	Limestone, massive		ak, cs, es	y	0.60
1.00	500.15	501.15	Limestone, nodular		ak, cs, es	y	1.00
2.35	501.15	503.50	Limestone, shaley, nodular		ak, cs, es	y	2.35
1.55	503.50	505.05	Limestone, nodular		ak, cs, es	y	1.55
3.10	505.05	508.15	Limestone, mosaic		ak, cs, es	y	3.10
2.35	508.15	510.50	Limestone, massive		ak, cs, es	y	2.35
0.95	510.50	511.45	Limestone, shaley, nodular		ak, cs, es	y	0.95
1.20	511.45	512.65	Shale, gn, ls nods		ak, cm, em		0.00
1.45	512.65	514.10	Limestone, sh layers		ak, cs, es	y	1.45
0.70	514.10	514.80	Shale, gn, ls nods		ak, cm, em		0.00
1.00	514.80	515.80	Shale, gn, ss stks		cs, es		0.00
1.60	515.80	517.40	Sandstone, gy, xbed		cs, es	y	1.60
2.80	517.40	520.20	Sandstone, gy, sh stks		cs, es	y	2.80
0.85	520.20	521.05	Shale, dk gy, ss layers		cs, es		0.00
1.30	521.05	522.35	Sandstone, gy, sh stks		cs, es	y	1.30
3.10	522.35	525.45	Shale, dk gy, ss stks		cs, es		0.00
1.90	525.45	527.35	Limestone, nodular		ak, cs, es	y	1.90
2.25	527.35	529.60	Claystone, gn, ls nods		ak, cv, ev		0.00
0.75	529.60	530.35	Claystone, bwn/ blk		ac, cv, ev		0.00
0.52	530.35	530.87	Shale, blk, coal stks		ac, cm, em		0.00
0.33	530.87	531.20	Shale, blk		ac, cm, em		0.00
0.35	531.20	531.55	Claystone, gy		cv, ev		0.00
1.74	531.55	533.29	Shale, gy, ls nods		ak, cm, em		0.00
0.65	533.29	533.94	Shale, gy, ss stks		cs, es		0.00
0.40	533.94	534.34	Sandstone, gy, xbed		cs, es	y	0.40
0.90	534.34	535.24	Shale, dk gy		cm, em		0.00
1.70	535.24	536.94	Limestone, shaley, nodular		ak, cs, es	y	1.70
0.70	536.94	537.64	Shale, dk gy, ls nods		ak, cm, em		0.00
4.00	537.64	541.64	Limestone, massive		ak, cs, es	y	4.00
0.40	541.64	542.04	Shale, dk gy, ls nods		ak, cm, em		0.00
0.50	542.04	542.54	Limestone, massive		ak, cs, es	y	0.50
0.30	542.54	542.84	Claystone, gn		cv, ev		0.00
0.45	542.84	543.29	Claystone, gy		cv, ev		0.00
0.65	543.29	543.94	Shale, gy, ls nods		ak, cm, em		0.00
5.50	543.94	549.44	Limestone, massive		ak, cs, es	y	5.50
0.65	549.44	550.09	Claystone, gy, ls nods		ak, cv, ev		0.00
1.05	550.09	551.14	Limestone, nodular		ak, cs, es	y	1.05
1.90	551.14	553.04	Claystone, gy, ls nods		ak, cv, ev		0.00
1.00	553.04	554.04	Limestone, shaley, nodular		ak, cs, es	y	1.00
1.10	554.04	555.14	Claystone, gn		cv, ev		0.00
0.65	555.14	555.79	Claystone, gy		cv, ev		0.00
0.45	555.79	556.24	Claystone, gn, ls nods		ak, cv, ev		0.00
0.55	556.24	556.79	Claystone, bwn/ blk, layered		ac, cv, ev		0.00

107

ATTACHMENT 13

DIAMOND DRILL HOLE:CLC-2002-04

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.90	556.79	557.69	Claystone, bwn/ blk, churned		ac, cv, ev		0.00
0.30	557.69	557.99	Claystone, bwn/ blk, layered		ac, cv, ev		0.00
0.08	557.99	558.07	Shale, blk, coal stks		ac, cm, em		0.00
0.31	558.07	558.38	Coal, bone stks, PITTSBURGH No. 8 ROOF COAL		ac, cv, ev		0.00
0.03	558.38	558.41	Bone, coal stks		ac, cv, ev		0.00
0.40	558.41	558.81	Coal, bone stks		ac, cv, ev		0.00
0.15	558.81	558.96	Shale, blk, coal stks		ac, cm, em		0.00
0.09	558.96	559.05	Shale, blk		ac, cm, em		0.00
0.75	559.05	559.80	Claystone, gy		cv, ev		0.00
0.04	559.80	559.84	Shale, blk		ac, cm, em		0.00
1.25	559.84	561.09	Coal, PITTSBURGH No. 8		ac, cv, ev		0.00
0.73	561.09	561.82	Coal, bone stks		ac, cv, ev		0.00
0.37	561.82	562.19	Coal		ac, cv, ev		0.00
1.20	562.19	563.39	Coal, bone stks		ac, cv, ev		0.00
0.03	563.39	563.42	Shale, dk gy		cm, em		0.00
1.16	563.42	564.58	Coal		ac, cv, ev		0.00
0.34	564.58	564.92	Coal, bone stks		ac, cv, ev		0.00
0.26	564.92	565.18	Shale, dk gy		cm, em		0.00
4.00	565.18	569.18	Claystone, gy, ls nods		ak, cv, ev		0.00
5.50	569.18	574.68	Shale, gy, ls nods		ak, cm, em		0.00
Total Depth		574.95					158.55

Acid Producing: ac
 Alkaline Producing: ak
 Compactible: c (v-very, m-moderate, s-slight)
 Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit

158.55

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit

28%

	Thickness (ft.)	Percent (%)
Hard Rock:	158.55	28%
Soft Rock:	416.40	72%
	574.95	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	265.82	2.19	1.59	68.5	-197.1
Coal	8.73	6.00	3.16	188.00	179.0
Bottom, 10 ft.	71.00	2.03	1.58	63.40	-7.6

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-06

Field Engineer: Kim Cecil
 Surface Elevation: 1250
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 682470
 Easting: 2424400
 Drilling Company: Kerogen Resources, Inc.

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
24.00	0.00	24.00	Casing				0.00
0.15	24.00	24.15	Shale, gy	YES	cm, em		0.00
1.35	24.15	25.50	Sandstone, gy, sh stks	YES	cs, es	y	1.35
1.85	25.50	27.35	Shale, gy	YES	cm, em		0.00
4.80	27.35	32.15	Claystone, dk gy	YES	cv, ev		0.00
2.75	32.15	34.90	Claystone, gy	YES	cv, ev		0.00
0.50	34.90	35.40	Shale, blk	YES	ac, cm, em		0.00
2.30	35.40	37.70	Limestone, shaley, nodular	YES	ak, cs, es	y	2.30
2.90	37.70	40.60	Shale, gy, ss stks and ls nods	YES	ak, cm, em		0.00
0.40	40.60	41.00	Shale, dk gy	YES	cm, em		0.00
0.45	41.00	41.45	Limestone, nodular	YES	ak, cs, es	y	0.45
4.20	41.45	45.65	Claystone, dk gy, ls nods	YES	ak, cv, ev		0.00
5.85	45.65	51.50	Claystone, red/ gy, ls nods	YES	ak, cv, ev		0.00
0.85	51.50	52.35	Shale, gy, interbedded ss	YES	cm, em		0.00
1.50	52.35	53.85	Shale, gy	YES	cm, em		0.00
0.90	53.85	54.75	Sandstone, gy, sh stks	YES	cs, es	y	0.90
1.45	54.75	56.20	Shale, gy, interbedded ss	YES	cm, em		0.00
1.50	56.20	57.70	Sandstone, gy, sh stks	YES	cs, es	y	1.50
1.40	57.70	59.10	Shale, gy, interbedded ss	YES	cm, em		0.00
4.75	59.10	63.85	Shale, gy, ss stks	YES	cm, em		0.00
1.55	63.85	65.40	Claystone, red/ gy		cv, ev		0.00
3.90	65.40	69.30	Claystone, red		cv, ev		0.00
1.05	69.30	70.35	Claystone, red/ gy		cv, ev		0.00
5.90	70.35	76.25	Claystone, dk gy		cv, ev		0.00
3.75	76.25	80.00	Shale, dk gy		cm, em		0.00
3.60	80.00	83.60	Claystone, gy		cv, ev		0.00
7.20	83.60	90.80	Shale, gy, ss stks		cm, em		0.00
1.10	90.80	91.90	Limestone, shaley, nodular		ak, cs, es	y	1.10
0.90	91.90	92.80	Claystone, red/ gy		cv, ev		0.00
1.45	92.80	94.25	Shale, red		cm, em		0.00
0.80	94.25	95.05	Shale, gy, ss stks and ls nods		ak, cm, em		0.00
0.65	95.05	95.70	Shale, red		cm, em		0.00
3.65	95.70	99.35	Shale, gy, ss stks and ls nods		ak, cm, em		0.00
1.85	99.35	101.20	Shale, red		cm, em		0.00
4.50	101.20	105.70	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.40	105.70	106.10	Limestone, nodular		ak, cs, es	y	0.40
0.90	106.10	107.00	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	107.00	107.75	Limestone, shaley, nodular		ak, cs, es	y	0.75
6.15	107.75	113.90	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.50	113.90	114.40	Limestone, shaley, nodular		ak, cs, es	y	0.50
4.00	114.40	118.40	Shale, gy, ls nods		ak, cm, em		0.00
1.10	118.40	119.50	Claystone, red/ gy		cv, ev		0.00
8.30	119.50	127.80	Claystone, red		cv, ev		0.00
0.10	127.80	127.90	Claystone, red/ gy		cv, ev		0.00
4.65	127.90	132.55	Shale, gy, ls nods		ak, cm, em		0.00
1.20	132.55	133.75	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
0.85	133.75	134.60	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
0.35	134.60	134.95	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
2.20	134.95	137.15	Shale, gy		cm, em		0.00
3.35	137.15	140.50	Claystone, red/ gy		cv, ev		0.00
4.50	140.50	145.00	Shale, red/ gy		cm, em		0.00
2.70	145.00	147.70	Shale, dk gy, ss stks and ls nods		ak, cm, em		0.00
2.80	147.70	150.50	Claystone, red/ gy		cv, ev		0.00
0.25	150.50	150.75	Limestone, shaley, nodular		ak, cs, es	y	0.25
6.15	150.75	156.90	Shale, gy, ls nods		ak, cm, em		0.00
2.20	156.90	159.10	Claystone, dk gy, ls nods		ak, cv, ev		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-06

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
4.70	159.10	163.80	Shale, gy, ls nods		ak, cm, em		0.00
1.70	163.80	165.50	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
1.70	165.50	167.20	Claystone, red, ls nods		ak, cv, ev		0.00
0.70	167.20	167.90	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
0.70	167.90	168.60	Claystone, red, ls nods		ak, cv, ev		0.00
5.40	168.60	174.00	Shale, gy, ls nods		ak, cm, em		0.00
5.90	174.00	179.90	Shale, gy, ls nods		ak, cm, em		0.00
2.65	179.90	182.55	Shale, dk gy, ls nods		ak, cm, em		0.00
2.15	182.55	184.70	Shale, gy, ls nods		ak, cm, em		0.00
5.45	184.70	190.15	Shale, dk gy		cm, em		0.00
0.30	190.15	190.45	Limestone, shaley, nodular		ak, cs, es	y	0.30
0.90	190.45	191.35	Shale, blk		ac, cm, em		0.00
5.20	191.35	196.55	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.20	196.55	197.75	Limestone, shaley, nodular		ak, cs, es	y	1.20
3.20	197.75	200.95	Shale, dk gy, ls nods		ak, cm, em		0.00
4.85	200.95	205.80	Shale, gy, ls nods		ak, cm, em		0.00
0.50	205.80	206.30	Shale, dk gy, ls nods		ak, cm, em		0.00
0.20	206.30	206.50	Shale, blk, coal stks		ac, cm, em		0.00
1.10	206.50	207.60	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.25	207.60	208.85	Limestone, shaley, nodular		ak, cs, es	y	1.25
2.80	208.85	211.65	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.46	211.65	212.11	Shale, blk		ac, cm, em		0.00
0.09	212.11	212.20	Shale, blk, coal stks		ac, cm, em		0.00
1.10	212.20	213.30	Coal, sh stks, WASHINGTON No. 12		ac, cv, ev		0.00
0.23	213.30	213.53	Coal, bone stks		ac, cv, ev		0.00
0.31	213.53	213.84	Coal, sh stks		ac, cv, ev		0.00
0.18	213.84	214.02	Coal, bone stks		ac, cv, ev		0.00
0.25	214.02	214.27	Shale, blk, coal stks		ac, cm, em		0.00
0.45	214.27	214.72	Shale, blk		ac, cm, em		0.00
0.13	214.72	214.85	Coal, sh stks		ac, cv, ev		0.00
0.37	214.85	215.22	Shale, dk gy		ac, cm, em		0.00
0.29	215.22	215.51	Coal, sh stks		ac, cv, ev		0.00
0.80	215.51	216.31	Coal, bone stks		ac, cv, ev		0.00
5.94	216.31	222.25	Claystone, dk gy, ls nods		ak, cv, ev		0.00
6.15	222.25	228.40	Shale, dk gy, ls nods		ak, cm, em		0.00
17.00	228.40	245.40	Shale, gy, ss stks and ls nods		ak, cm, em		0.00
0.50	245.40	245.90	Sandstone, gy, sh stks		cs, es	y	0.50
8.20	245.90	254.10	Shale, gy, ss stks and ls nods		ak, cm, em		0.00
3.30	254.10	257.40	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.24	257.40	257.64	Shale, blk, coal stks		ac, cm, em		0.00
0.21	257.64	257.85	Claystone, dk gy		cv, ev		0.00
0.49	257.85	258.34	Coal, sh stks, WAYNESBURG "A"		ac, cv, ev		0.00
0.17	258.34	258.51	Shale, blk		ac, cm, em		0.00
0.92	258.51	259.43	Coal, sh stks		ac, cv, ev		0.00
0.73	259.43	260.16	Bone, coal layers		ac, cv, ev		0.00
0.21	260.16	260.37	Shale, blk		ac, cm, em		0.00
0.29	260.37	260.66	Shale, blk, coal stks		ac, cm, em		0.00
0.98	260.66	261.64	Coal, sh stks		ac, cv, ev		0.00
0.46	261.64	262.10	Shale, dk gy		ac, cm, em		0.00
0.78	262.10	262.88	Coal, sh stks		ac, cv, ev		0.00
0.29	262.88	263.17	Coal, bone stks		ac, cv, ev		0.00
0.06	263.17	263.23	Shale, dk gy, coal stks		ac, cm, em		0.00
0.40	263.23	263.63	Coal, sh stks		ac, cv, ev		0.00
0.87	263.63	264.50	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	264.50	265.25	Shale, blk		ac, cm, em		0.00
0.70	265.25	265.95	Limestone, shaley, nodular		ak, cs, es	y	0.70
3.95	265.95	269.90	Shale, dk gy, ls nods		ak, cm, em		0.00
4.40	269.90	274.30	Shale, gy, ls nods		ak, cm, em		0.00
3.55	274.30	275.95	Sandstone, gy, sh stks		cs, es	y	1.65
5.95	275.95	281.90	Shale, dk gy, ss stks		cm, em		0.00
1.20	281.90	283.10	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.30	283.10	283.40	Limestone, shaley, nodular		ak, cs, es	y	0.30
1.70	283.40	285.10	Shale, gy, ls nods		ak, cm, em		0.00
1.05	285.10	286.15	Shale, gy, ss stks and ls nods		ak, cm, em		0.00
2.75	286.15	288.90	Sandstone, gy, sh stks		cs, es	y	2.75
3.35	288.90	292.25	Shale, gy, ss layers		cm, em		0.00
1.00	292.25	293.25	Sandstone, gy, sh stks		cs, es	y	1.00
2.55	293.25	295.80	Shale, dk gy, ss stks		cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-06

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.35	295.80	297.15	Claystone, blk		ac, cv, ev		0.00
0.95	297.15	298.10	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	298.10	298.85	Limestone, shaley, nodular		ak, cs, es	y	0.75
0.50	298.85	299.35	Shale, dk gy, ls nods		ak, cm, em		0.00
0.70	299.35	300.05	Shale, blk		ac, cm, em		0.00
0.55	300.05	300.60	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.00	300.60	302.60	Claystone, blk/ tan, layered		cv, ev		0.00
3.00	302.60	305.60	Shale, gy, sandy		cm, em		0.00
2.95	305.60	308.55	Shale, dk gy, ss stks		cm, em		0.00
0.80	308.55	309.35	Shale, gy, interbedded ss		cm, em		0.00
1.10	309.35	310.45	Shale, dk gy, ss stks		cm, em		0.00
1.30	310.45	311.75	Shale, dk gy, ls nods		ak, cm, em		0.00
3.15	311.75	314.90	Shale, dk gy, interbedded ss		cm, em		0.00
8.60	314.90	323.50	Sandstone, gy, sh stks		cs, es	y	8.60
0.60	323.50	324.10	Shale, blk, ss stks		ac, cm, em		0.00
1.05	324.10	325.15	Shale, dk gy		ac, cm, em		0.00
0.19	325.15	325.34	Shale, dk gy, coal stks		ac, cm, em		0.00
0.05	325.34	325.39	Shale, blk		ac, cm, em		0.00
0.10	325.39	325.49	Bone, coal layers, WAYNESBURG No. 11		ac, cv, ev		0.00
1.16	325.49	326.65	Claystone, dk gy		cv, ev		0.00
0.95	326.65	327.60	Shale, dk gy, ls nods		ak, cm, em		0.00
1.20	327.60	328.80	Limestone, shaley, nodular		ak, cs, es	y	1.20
0.95	328.80	329.75	Limestone, nodular		ak, cs, es	y	0.95
3.15	329.75	332.90	Limestone, shaley, layered		ak, cs, es	y	3.15
2.00	332.90	334.90	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	334.90	335.65	Limestone, nodular		ak, cs, es	y	0.75
1.70	335.65	337.35	Shale, dk gy, ls nods		ak, cm, em		0.00
1.70	337.35	339.05	Limestone, nodular		ak, cs, es	y	1.70
0.75	339.05	339.80	Shale, dk gy, ls nods		ak, cm, em		0.00
0.45	339.80	340.25	Limestone, nodular		ak, cs, es	y	0.45
1.70	340.25	341.95	Limestone, mosaic		ak, cs, es	y	1.70
2.45	341.95	344.40	Shale, dk gy, ls nods		ak, cm, em		0.00
0.30	344.40	344.70	Claystone, grn, ls nods		ak, cv, ev		0.00
0.40	344.70	345.10	Limestone, nodular		ak, cs, es	y	0.40
1.40	345.10	346.50	Limestone, shaley, nodular		ak, cs, es	y	1.40
0.65	346.50	347.15	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	347.15	347.90	Limestone, shaley, nodular		ak, cs, es	y	0.75
1.10	347.90	349.00	Claystone, grn		cv, ev		0.00
0.90	349.00	349.90	Limestone, shaley, layered		ak, cs, es	y	0.90
1.70	349.90	351.60	Claystone, gy, ls nods		ak, cv, ev		0.00
0.35	351.60	351.95	Limestone, nodular		ak, cs, es	y	0.35
0.75	351.95	352.70	Claystone, grn, ls nods		ak, cv, ev		0.00
1.35	352.70	354.05	Limestone, nodular		ak, cs, es	y	1.35
0.30	354.05	354.35	Claystone, gy, ls nods		ak, cv, ev		0.00
0.50	354.35	354.85	Limestone, nodular		ak, cs, es	y	0.50
2.70	354.85	357.55	Claystone, red/ gy		cv, ev		0.00
1.30	357.55	358.85	Claystone, gy, ls nods		ak, cv, ev		0.00
2.45	358.85	361.30	Shale, gy, ss stks and ls nods		ak, cm, em		0.00
0.30	361.30	361.60	Sandstone, gy, sh stks		ak, cs, es	y	0.30
1.40	361.60	363.00	Shale, grn, ss stks		cm, em		0.00
1.20	363.00	364.20	Shale, red/ gy, ls nods		ak, cm, em		0.00
0.70	364.20	364.90	Shale, red		cm, em		0.00
0.40	364.90	365.30	Shale, dk gy		cm, em		0.00
1.65	365.30	366.95	Shale, dk gy, ls nods		ak, cm, em		0.00
0.95	366.95	367.90	Limestone, nodular		ak, cs, es	y	0.95
4.35	367.90	372.25	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.75	372.25	373.00	Limestone, nodular		ak, cs, es	y	0.75
2.10	373.00	375.10	Claystone, grn, ls nods		ak, cv, ev		0.00
0.85	375.10	375.95	Limestone, shaley, nodular		ak, cs, es	y	0.85
2.50	375.95	378.45	Shale, grn, ls nods		ak, cm, em		0.00
0.75	378.45	379.20	Limestone, nodular		ak, cs, es	y	0.75
1.00	379.20	380.20	Limestone, shaley, nodular		ak, cs, es	y	1.00
1.05	380.20	381.25	Shale, dk gy, ls nods		ak, cm, em		0.00
1.05	381.25	382.30	Limestone, shaley, nodular		ak, cs, es	y	1.05
0.50	382.30	382.80	Limestone, nodular		ak, cs, es	y	0.50
2.70	382.80	385.50	Shale, dk gy, ls nods		ak, cm, em		0.00
2.25	385.50	387.75	Limestone, shaley, nodular		ak, cs, es	y	2.25
1.80	387.75	389.55	Limestone, layered		ak, cs, es	y	1.80

DIAMOND DRILL HOLE: CLC-2002-06

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.70	389.55	390.25	Limestone, nodular		ak, cs, es	y	0.70
0.65	390.25	390.90	Shale, dk gy, ls nods		ak, cm, em		0.00
2.35	390.90	393.25	Limestone, shaley, nodular		ak, cs, es	y	2.35
0.80	393.25	394.05	Shale, dk gy, ls nods		ak, cm, em		0.00
2.50	394.05	396.55	Limestone, shaley, nodular		ak, cs, es	y	2.50
2.90	396.55	399.45	Shale, grn, ls nods		ak, cm, em		0.00
0.45	399.45	399.90	Shale, gy, sandy, ls nods		ak, cm, em		0.00
2.75	399.90	402.65	Shale, grn, ls nods		ak, cm, em		0.00
3.65	402.65	406.30	Limestone, shaley, nodular		ak, cs, es	y	3.65
1.30	406.30	407.60	Limestone, nodular		ak, cs, es	y	1.30
2.65	407.60	410.25	Limestone, shaley, nodular		ak, cs, es	y	2.65
0.65	410.25	410.90	Claystone, grn, ls nods		ak, cv, ev		0.00
3.70	410.90	414.60	Shale, grn, ls nods		ak, cm, em		0.00
3.15	414.60	417.75	Limestone, shaley, nodular		ak, cs, es	y	3.15
1.75	417.75	419.50	Shale, dk gy, ls nods		ak, cm, em		0.00
1.40	419.50	420.90	Limestone, nodular		ak, cs, es	y	1.40
5.90	420.90	426.80	Limestone, shaley, nodular		ak, cs, es	y	5.90
3.70	426.80	430.50	Limestone, nodular		ak, cs, es	y	3.70
0.50	430.50	431.00	Shale, dk gy, ls nods		ak, cm, em		0.00
1.20	431.00	432.20	Limestone, massive		ak, cs, es	y	1.20
1.40	432.20	433.60	Limestone, shaley, nodular		ak, cs, es	y	1.40
5.45	433.60	439.05	Limestone, massive		ak, cs, es	y	5.45
2.05	439.05	441.10	Limestone, layered		ak, cs, es	y	2.05
1.25	441.10	442.35	Limestone, shaley, nodular		ak, cs, es	y	1.25
0.90	442.35	443.25	Shale, grn, ls nods		ak, cm, em		0.00
1.30	443.25	444.55	Limestone, nodular		ak, cs, es	y	1.30
2.95	444.55	447.50	Shale, dk gy, ls nods		ak, cm, em		0.00
2.65	447.50	450.15	Limestone, shaley, nodular		ak, cs, es	y	2.65
1.30	450.15	451.45	Limestone, massive		ak, cs, es	y	1.30
2.95	451.45	454.40	Limestone, nodular		ak, cs, es	y	2.95
1.80	454.40	456.20	Limestone, layered		ak, cs, es	y	1.80
1.50	456.20	457.70	Shale, dk gy, ls nods		ak, cm, em		0.00
0.55	457.70	458.25	Limestone, shaley, nodular		ak, cs, es	y	0.55
2.75	458.25	461.00	Claystone, blk/ tan, ls nods		ak, cv, ev		0.00
0.20	461.00	461.20	Shale, blk		ac, cm, em		0.00
0.10	461.20	461.30	Shale, blk, coal stks		ac, cm, em		0.00
0.27	461.30	461.57	Shale, blk		ac, cm, em		0.00
0.23	461.57	461.80	Coal, sh stks, SEWICKLEY No. 9		ac, cv, ev		0.00
0.10	461.80	461.90	Shale, blk, coal stks		ac, cm, em		0.00
2.40	461.90	464.30	Claystone, dk gy		cv, ev		0.00
1.90	464.30	466.20	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.50	466.20	466.70	Shale, dk gy, ls nods		ak, cm, em		0.00
1.40	466.70	468.10	Shale, gy, sandy		cm, em		0.00
1.15	468.10	469.25	Shale, gy, ss stks		cm, em		0.00
1.55	469.25	470.80	Sandstone, gy, sh stks		cs, es	y	1.55
7.80	470.80	478.60	Shale, gy, ss stks		cm, em		0.00
0.65	478.60	479.25	Sandstone, gy, sh stks		cs, es	y	0.65
1.45	479.25	480.70	Shale, gy, ss stks		cm, em		0.00
5.95	480.70	486.65	Sandstone, gy, sh stks		cs, es	y	5.95
4.45	486.65	491.10	Sandstone, gy, coal stks		cs, es	y	4.45
9.45	491.10	500.55	Sandstone, gy, sh stks		cs, es	y	9.45
0.75	500.55	501.30	Claystone, dk gy		cv, ev		0.00
0.31	501.30	501.61	Shale, blk, coal stks		ac, cm, em		0.00
0.27	501.61	501.88	Bone, coal layers, FISHPOT		ac, cv, ev		0.00
0.44	501.88	502.32	Coal, sh stks		ac, cv, ev		0.00
0.22	502.32	502.54	Shale, dk gy, coal stks		ac, cm, em		0.00
0.33	502.54	502.87	Coal, bone stks		ac, cv, ev		0.00
0.31	502.87	503.18	Coal, sh stks		ac, cv, ev		0.00
0.67	503.18	503.85	Shale, blk		ac, cm, em		0.00
2.70	503.85	506.55	Limestone, nodular		ak, cs, es	y	2.70
0.90	506.55	507.45	Shale, dk gy, ls nods		ak, cm, em		0.00
0.40	507.45	507.85	Limestone, shaley, nodular		ak, cs, es	y	0.40
2.45	507.85	510.30	Limestone, mosaic		ak, cs, es	y	2.45
0.65	510.30	510.95	Shale, dk gy, ls nods		ak, cm, em		0.00
1.55	510.95	512.50	Limestone, nodular		ak, cs, es	y	1.55
0.75	512.50	513.25	Shale, dk gy, ls nods		ak, cm, em		0.00
1.05	513.25	514.30	Limestone, massive		ak, cs, es	y	1.05
3.90	514.30	518.20	Limestone, shaley, nodular		ak, cs, es	y	3.90

DIAMOND DRILL HOLE: CLC-2002-06

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.95	518.20	520.15	Limestone, nodular		ak, cs, es	y	1.95
0.35	520.15	520.50	Shale, blk		ac, cm, em		0.00
1.55	520.50	522.05	Limestone, nodular		ak, cs, es	y	1.55
1.30	522.05	523.35	Shale, grn, ls nods		ak, cm, em		0.00
0.70	523.35	524.05	Limestone, nodular		ak, cs, es	y	0.70
0.40	524.05	524.45	Shale, grn, ls nods		ak, cm, em		0.00
4.15	524.45	528.60	Shale, dk gy, ls nods		ak, cm, em		0.00
2.35	528.60	530.95	Shale, dk gy, ss stks		cm, em		0.00
0.50	530.95	531.45	Sandstone, gy, sh stks		ak, cs, es	y	0.50
3.50	531.45	534.95	Shale, gy, ss stks and ls nods		ak, cm, em		0.00
1.50	534.95	536.45	Limestone, shaley, nodular		ak, cs, es	y	1.50
1.95	536.45	538.40	Limestone, nodular		ak, cs, es	y	1.95
0.95	538.40	539.35	Limestone, shaley, layered		ak, cs, es	y	0.95
0.30	539.35	539.65	Shale, blk		ac, cm, em		0.00
2.65	539.65	542.30	Limestone, shaley, nodular		ak, cs, es	y	2.65
2.55	542.30	544.85	Claystone, grn, ls nods		ak, cv, ev		0.00
0.55	544.85	545.40	Claystone, dk gy		cv, ev		0.00
0.40	545.40	545.80	Shale, blk		ac, cm, em		0.00
0.20	545.80	546.00	Shale, blk, coal stks		ac, cm, em		0.00
0.90	546.00	546.90	Shale, dk gy		cm, em		0.00
0.85	546.90	547.75	Shale, dk gy, ls nods		ak, cm, em		0.00
0.80	547.75	548.55	Limestone, shaley, layered		ak, cs, es	y	0.80
0.75	548.55	549.30	Shale, dk gy, ls nods		ak, cm, em		0.00
0.55	549.30	549.85	Shale, gy, ls nods		ak, cm, em		0.00
6.95	549.85	556.80	Limestone, massive		ak, cs, es	y	6.95
0.40	556.80	557.20	Shale, dk gy, ls nods		ak, cm, em		0.00
3.45	557.20	560.65	Limestone, layered		ak, cs, es	y	3.45
1.00	560.65	561.65	Shale, gy, ls nods		ak, cm, em		0.00
1.90	561.65	563.55	Claystone, gy, ls nods		ak, cv, ev		0.00
0.75	563.55	564.30	Limestone, shaley, nodular		ak, cs, es	y	0.75
1.60	564.30	565.90	Claystone, grn, ls nods		ak, cv, ev		0.00
1.40	565.90	567.30	Claystone, gy		cv, ev		0.00
0.30	567.30	567.60	Shale, gy		cm, em		0.00
0.13	567.60	567.73	Shale, blk		ac, cm, em		0.00
1.30	567.73	569.03	Claystone, blk/ tan, layered		cv, ev		0.00
0.30	569.03	569.33	Shale, gy		cm, em		0.00
0.10	569.33	569.43	Claystone, blk/ tan, layered		cv, ev		0.00
0.19	569.43	569.62	Coal, pyrite, PITTSBURGH No. 8		ac, cv, ev		0.00
0.59	569.62	570.21	Coal		ac, cv, ev		0.00
0.02	570.21	570.23	Pyrite		ac, cs, es		0.00
0.96	570.23	571.19	Coal		ac, cv, ev		0.00
0.04	571.19	571.23	Shale, blk, coal stks		ac, cm, em		0.00
0.64	571.23	571.87	Coal		ac, cv, ev		0.00
0.01	571.87	571.88	Shale, dk gy		ac, cm, em		0.00
1.47	571.88	573.35	Coal		ac, cv, ev		0.00
0.04	573.35	573.39	Shale, blk, coal stks		ac, cm, em		0.00
0.99	573.39	574.38	Coal		ac, cv, ev		0.00
0.70	574.38	575.08	Shale, dk gy		cm, em		0.00
2.25	575.08	577.33	Limestone, shaley, nodular		ak, cs, es	y	2.25
0.90	577.33	578.23	Claystone, grn, ls nods		ak, cv, ev		0.00
3.10	578.23	581.33	Shale, gy, sandy, ls nods		ak, cs, es		0.00
1.00	581.33	582.33	Sandstone, gy, sh stks, calcite cemented		ak, cs, es	y	1.00
0.35	582.33	582.68	Shale, gy, ss stks		cm, em		0.00
0.30	582.68	582.98	Sandstone, gy, ss stks		cs, es	y	0.30
1.90	582.98	584.88	Shale, gy, ss stks		cm, em		0.00
Total Depth			584.88				164.80

Acid Producing: ac

Alkaline Producing: ak

Compactible: c (v-very, m-moderate, s-slight)

Erodible: e (v-very, m-moderate, s-slight)

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-06

Thickness (ft.)	Depth From (ft.)	To (ft.) Strata	Water Bearing	Physical Properties	Thickness of Hard Rock HR (ft.)
					164.80
Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit					28%

	Thickness (Ft.)	Percent (%)
Hard Rock:	164.80	28%
Soft Rock:	420.08	72%
	<u>584.88</u>	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft. Coal	247.50	1.19	1.07	37.20	-210.50
Bottom, 10 ft.	338.00	1.79	1.65	55.95	-282.15

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-18

Field Engineer: Kim Cecil
 Surface Elevation: 1,320
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 691,650
 Easting: 2,428,350
 Drilling Company: Kerogen Resources

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
57.00	0.00	57.00	Casing				0.00
5.90	57.00	62.90	shale, gy, churned	yes	cm, em		0.00
4.70	62.90	67.60	shale, gy, sandy	yes	cm, em		0.00
1.00	67.60	68.60	shale, red	yes	cm, em		0.00
0.80	68.60	69.40	shale, red/ gy, churned		cm, em		0.00
4.10	69.40	73.50	claystone, gy, ls nods		ak, cv, ev		0.00
1.50	73.50	75.00	claystone, red/ gy		cv, ev		0.00
2.65	75.00	77.65	sandstone, gy, massive		cs, es	y	2.65
3.05	77.65	80.70	shale, gy, ss streaks, ls nods		ak, cm, em		0.00
1.50	80.70	82.20	claystone, red/ gy		cv, ev		0.00
4.60	82.20	86.80	shale, gy, ss streaks		cm, em		0.00
1.25	86.80	88.05	claystone, red		cv, ev		0.00
1.30	88.05	89.35	claystone, gy		cv, ev		0.00
0.35	89.35	89.70	limestone, shaley, nodular		ak, cs, es	y	0.35
5.40	89.70	95.10	shale, dk gy, churned		cm, em		0.00
5.10	95.10	100.20	shale, dk gy, ls nods, churned		ak, cm, em		0.00
0.90	100.20	101.10	shale, gy, sandy, ls nods		ak, cm, em		0.00
4.95	101.10	106.05	sandstone, gy, massive	yes	cs, es	y	4.95
4.05	106.05	110.10	sandstone, gy, sh streaks	yes	cs, es	y	4.05
3.30	110.10	113.40	sandstone, gy, crossbedded	yes	cs, es	y	3.30
0.90	113.40	114.30	sandstone, gy, sh streaks		cs, es	y	0.90
2.00	114.30	116.30	shale, dk gy, churned		cm, em		0.00
1.10	116.30	117.40	shale, dk gy, ls nods, churned		ak, cm, em		0.00
1.20	117.40	118.60	shale, gy, ss streaks, ls nods	yes	ak, cm, em		0.00
0.50	118.60	119.10	sandstone, gy, sh streaks	yes	ak, cm, em	y	0.50
0.75	119.10	119.85	shale, gy, ss streaks	yes	ak, cm, em		0.00
0.95	119.85	120.80	sandstone, gy, sh streaks	yes	cs, es	y	0.95
7.40	120.80	128.20	shale, gy, ss streaks		ak, cm, em		0.00
2.10	128.20	130.30	shale, dk gy		cm, em		0.00
1.40	130.30	131.70	shale, red, churned		cm, em		0.00
2.30	131.70	134.00	claystone, gy		cv, ev		0.00
1.25	134.00	135.25	claystone, red/ gy		cv, ev		0.00
4.25	135.25	139.50	shale, gy, ss streaks, ls nods		ak, cs, es		0.00
1.00	139.50	140.50	claystone, red/ gy		cv, ev		0.00
1.65	140.50	142.15	claystone, red		cv, ev		0.00
2.75	142.15	144.90	shale, dk gy, churned		cm, em		0.00
7.60	144.90	152.50	shale, dk gy, ss streaks		cm, em		0.00
1.50	152.50	154.00	shale, dk gy, ss layers		cm, em		0.00
2.60	154.00	156.60	shale, dk gy, ss streaks		cm, em		0.00
4.55	156.60	161.15	shale, red		cm, em		0.00
1.20	161.15	162.35	core loss				0.00
4.55	162.35	166.90	shale, red		cm, em		0.00
3.45	166.90	170.35	shale, dk gy, ls nods, churned		ak, cm, em		0.00
0.40	170.35	170.75	limestone, shaley, nodular		ak, cs, es	y	0.40
4.65	170.75	175.40	shale, dk gy, ls nods, churned		ak, cm, em		0.00
11.00	175.40	186.40	shale, gy, ls nods, churned		ak, cm, em		0.00
8.30	186.40	194.70	shale, red, churned		cm, em		0.00
1.60	194.70	196.30	shale, red/ gy, churned		cm, em		0.00
15.20	196.30	211.50	shale, gy, ls nods, churned		ak, cm, em		0.00
1.90	211.50	213.40	claystone, red, ls nods		ak, cm, em		0.00
2.70	213.40	216.10	claystone, red/ gy, churned		cv, ev		0.00
2.20	216.10	218.30	shale, dk gy		cm, em		0.00
0.80	218.30	219.10	shale, red, churned		cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-18

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
3.70	219.10	222.80	claystone, red/gy		cv, ev		0.00
1.10	222.80	223.90	claystone, gy, ls nods		ak, cv, ev		0.00
2.20	223.90	226.10	shale, gy, ls nods, churned		ak, cm, em		0.00
1.65	226.10	227.75	limestone, shaley, nodular		ak, cs, es	y	1.65
1.65	227.75	229.40	claystone, gy, ls nods		ak, cv, ev		0.00
5.65	229.40	235.05	shale, gy, ls nods, churned		ak, cm, em		0.00
2.20	235.05	237.25	shale, dk gy, ss streaks		cm, em		0.00
1.45	237.25	238.70	shale, dk gy, ss layers		cm, em		0.00
1.80	238.70	240.50	shale, red/gy, churned		cm, em		0.00
3.50	240.50	244.00	claystone, dk gy, ls nods		ak, cv, ev		0.00
5.10	244.00	249.10	shale, dk gy, ls nods		ak, cm, em		0.00
3.30	249.10	252.40	shale, gy, ls nods, churned		ak, cm, em		0.00
0.90	252.40	253.30	shale, dk gy, ls nods, churned		ak, cm, em		0.00
5.10	253.30	258.40	shale, dk gy, ss streaks		cm, em		0.00
2.50	258.40	260.90	shale, dk gy, ss layers, ls nods		ak, cm, em		0.00
2.10	260.90	263.00	shale, dk gy, ls nods, churned		ak, cm, em		0.00
1.70	263.00	264.70	limestone, shaley, nodular		ak, cs, es	y	1.70
5.40	264.70	270.10	shale, gy, ls nods, churned		ak, cm, em		0.00
5.64	270.10	275.74	claystone, dk gy, ls nods		ak, cv, ev		0.00
0.28	275.74	276.02	shale, blk, churned		cv, ev		0.00
0.46	276.02	276.48	claystone, dk gy		ac, cv, ev		0.00
0.62	276.48	277.10	shale, blk, coal streaks		ac, cv, ev		0.00
1.05	277.10	278.15	coal w/ sh streaks, WASHINGTON No. 12		ac, cv, ev		0.00
0.37	278.15	278.52	shale, blk, coal streaks		ac, cm, em		0.00
0.35	278.52	278.87	coal w/ sh streaks		ac, cv, ev		0.00
0.29	278.87	279.16	coal w/ bone streaks		ac, cv, ev		0.00
0.60	279.16	279.76	coal		ac, cv, ev		0.00
0.14	279.76	279.90	shale, blk, coal streaks		ac, cm, em		0.00
0.27	279.90	280.17	coal w/ sh streaks		ac, cv, ev		0.00
0.13	280.17	280.30	shale, dk gy, churned		cm, em		0.00
0.32	280.30	280.62	shale, blk, coal streaks		ac, cm, em		0.00
0.34	280.62	280.96	shale, dk gy, churned		cm, em		0.00
0.71	280.96	281.67	coal		ac, cv, ev		0.00
0.16	281.67	281.83	coal w/ bone streaks		ac, cv, ev		0.00
0.67	281.83	282.50	shale, dk gy, churned		cm, em		0.00
4.50	282.50	287.00	claystone, gy		cm, em		0.00
4.45	287.00	291.45	shale, gy, ls nods, churned		ak, cm, em		0.00
4.25	291.45	295.70	shale, gy, sandy, ls nods		ak, cm, em		0.00
2.70	295.70	298.40	shale, gy, ss layers, ls nods		ak, cm, em		0.00
1.90	298.40	300.30	shale, dk gy, ss streaks, ls nods		ak, cm, em		0.00
0.60	300.30	300.90	shale, gy, ss layers, ls nods		ak, cm, em		0.00
1.80	300.90	302.70	shale, gy, sandy, ls nods		ak, cm, em		0.00
0.90	302.70	303.60	sandstone, gy, sh streaks		cs, es	y	0.90
6.85	303.60	310.45	shale, dk gy, ss streaks, ls nods		ak, cs, es		0.00
0.45	310.45	310.90	limestone, shaley, nodular		ak, cs, es	y	0.45
2.40	310.90	313.30	shale, dk gy, ls nods, churned		ak, cm, em		0.00
9.75	313.30	323.05	shale, dk gy, ss streaks, ls nods		ak, cm, em		0.00
1.65	323.05	324.70	sandstone, gy, sh streaks		cs, es	y	1.65
2.00	324.70	326.70	shale, dk gy, ss streaks		cm, em		0.00
9.50	326.70	336.20	sandstone, gy, sh streaks		cs, es	y	9.50
4.10	336.20	340.30	sandstone, gy, massive		cs, es	y	4.10
2.50	340.30	342.80	sandstone, gy, sh streaks		cs, es	y	2.50
0.65	342.80	343.45	shale, blk, coal streaks		ac, cm, em		0.00
0.80	343.45	344.25	limestone, shaley, nodular		ak, cs, es	y	0.80
1.14	344.25	345.39	shale, blk, coal layers		ac, cm, em		0.00
0.46	345.39	345.85	shale, gy, ls nods, churned		ak, cm, em		0.00
2.45	345.85	348.30	limestone, shaley, nodular		ak, cs, es	y	2.45
1.30	348.30	349.60	shale, dk gy, ls nods		ak, cm, em		0.00
3.40	349.60	353.00	limestone, shaley, nodular		ak, cs, es	y	3.40
2.70	353.00	355.70	shale, dk gy, ls nods, churned		ak, cm, em		0.00
2.60	355.70	358.30	sandstone, gy, sh streaks		cs, es	y	2.60
8.20	358.30	366.50	shale, dk gy, ss streaks, ls nods		ak, cm, em		0.00
4.05	366.50	370.55	shale, dk gy, ls nods, churned		ak, cm, em		0.00
5.50	370.55	376.05	shale, gy, ss streaks, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-18

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
3.45	376.05	379.50	shale, dk gy, ls nods, churned		ak, cm, em		0.00
3.34	379.50	382.84	shale, gy, ss streaks, ls nods		ak, cm, em		0.00
0.27	382.84	383.11	shale, dk gy, churned		cm, em		0.00
0.08	383.11	383.19	shale, blk, coal streaks		ac, cm, em		0.00
0.17	383.19	383.36	shale, blk, churned		ac, cm, em		0.00
0.73	383.36	384.09	coal w/ pyrite, WAYNESBURG No. 11		ac, cv, ev		0.00
0.26	384.09	384.35	claystone, dk gy		cv, ev		0.00
0.58	384.35	384.93	coal w/ sh streaks		ac, cv, ev		0.00
0.49	384.93	385.42	coal w/ bone streaks		ac, cv, ev		0.00
0.73	385.42	386.15	claystone, gy		cv, ev		0.00
1.75	386.15	387.90	shale, dk gy, ss layers		cm, em		0.00
5.10	387.90	393.00	shale, dk gy, ss streaks		cm, em		0.00
3.75	393.00	396.75	shale, dk gy, churned		cm, em		0.00
0.95	396.75	397.70	shale, dk gy, ss streaks		cm, em		0.00
2.05	397.70	399.75	shale, dk gy, churned		cm, em		0.00
0.37	399.75	400.12	coal w/ bone streaks, LITTLE WAYNESBURG		ac, cv, ev		0.00
1.38	400.12	401.50	shale, dk gy, churned		cm, em		0.00
1.80	401.50	403.30	limestone, shaley, nodular		ak, cs, es	y	1.80
2.90	403.30	406.20	limestone, nodular		ak, cs, es	y	2.90
2.75	406.20	408.95	shale, dk gy, ls nods, churned		ak, cm, em		0.00
1.25	408.95	410.20	limestone, shaley, mosaic		ak, cs, es	y	1.25
1.90	410.20	412.10	shale, dk gy, ls nods, churned		ak, cm, em		0.00
1.60	412.10	413.70	limestone, nodular		ak, cs, es	y	1.60
0.80	413.70	414.50	shale, dk gy, ls nods, churned		ak, cm, em		0.00
1.70	414.50	416.20	limestone, shaley, mosaic		ak, cs, es	y	1.70
3.80	416.20	420.00	shale, dk gy, ls nods, churned		ak, cm, em		0.00
0.60	420.00	420.60	claystone, gy, ls nods		ak, cv, ev		0.00
3.30	420.60	423.90	shale, dk gy, ls nods, churned		ak, cm, em		0.00
4.85	423.90	428.75	limestone, layered		ak, cs, es	y	4.85
6.75	428.75	435.50	shale, dk gy, ls nods, churned		ak, cm, em		0.00
7.15	435.50	442.65	shale, gy, ss streaks, ls nods		ak, cm, em		0.00
0.70	442.65	443.35	shale, gy, ss streaks		cm, em		0.00
0.53	443.35	443.88	shale, dk gy, ls nods, churned		ak, cm, em		0.00
3.82	443.88	447.70	shale, gy, ss streaks, ls nods		ak, cm, em		0.00
1.65	447.70	449.35	limestone, nodular		ak, cs, es	y	1.65
1.55	449.35	450.90	claystone, gy		cv, ev		0.00
2.85	450.90	453.75	shale, green, ls nods, churned		ak, cv, ev		0.00
0.75	453.75	454.50	claystone, red/ gy		cv, ev		0.00
9.10	454.50	463.60	limestone, shaley, layered		ak, cs, es	y	9.10
2.40	463.60	466.00	limestone, massive		ak, cs, es	y	2.40
0.55	466.00	466.55	shale, dk gy, ls nods, churned		ak, cm, em		0.00
0.65	466.55	467.20	limestone, massive		ak, cs, es	y	0.65
2.00	467.20	469.20	shale, dk gy, ls nods, churned		ak, cm, em		0.00
0.50	469.20	469.70	limestone, massive		ak, cs, es	y	0.50
3.60	469.70	473.30	shale, dk gy, ls nods, churned		ak, cm, em		0.00
3.60	473.30	476.90	shale, green, ls nods, churned		ak, cm, em		0.00
1.10	476.90	478.00	limestone, shaley, nodular		ak, cs, es	y	1.10
2.80	478.00	480.80	shale, dk gy, ls nods, churned		ak, cm, em		0.00
2.70	480.80	483.50	limestone, shaley, nodular		ak, cs, es	y	2.70
0.90	483.50	484.40	limestone, nodular		ak, cs, es	y	0.90
2.70	484.40	487.10	shale, dk gy, ls nods, churned		ak, cm, em		0.00
3.25	487.10	490.35	shale, green, ls nods, churned		ak, cm, em		0.00
1.85	490.35	492.20	limestone, shaley, nodular		ak, cs, es	y	1.85
4.90	492.20	497.10	shale, gy, ls nods, churned		ak, cm, em		0.00
0.90	497.10	498.00	limestone, shaley, nodular		ak, cs, es	y	0.90
1.75	498.00	499.75	shale, dk gy, ls nods, churned		ak, cm, em		0.00
11.70	499.75	511.45	limestone, shaley, layered		ak, cs, es	y	11.70
1.60	511.45	513.05	claystone, green, ls nods		ak, cv, ev		0.00
5.80	513.05	518.85	limestone, massive		ak, cs, es	y	5.80
2.10	518.85	520.95	limestone, layered		ak, cs, es	y	2.10
1.10	520.95	522.05	limestone, shaley, nodular		ak, cs, es	y	1.10
1.10	522.05	523.15	shale, green, ls nods, churned		ak, cm, em		0.00
1.50	523.15	524.65	limestone, massive		ak, cs, es	y	1.50
1.15	524.65	525.80	shale, green, ls nods, churned		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-18

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
2.80	525.80	528.60	limestone, shaley, nodular		ak, cs, es	y	2.80
2.05	528.60	530.65	shale, dk gy, ls nods, churned		ak, cm, em		0.00
4.05	530.65	534.70	limestone, nodular		ak, cs, es	y	4.05
2.40	534.70	537.10	limestone, shaley, layered		ak, cs, es	y	2.40
4.25	537.10	541.35	shale, dk gy, ls nods, churned		ak, cm, em		0.00
1.50	541.35	542.85	claystone, gy		cv, ev		0.00
0.46	542.85	543.31	shale, dk gy, coal streaks		ac, cm, em		0.00
0.16	543.31	543.47	shale, blk, churned		ac, cm, em		0.00
0.74	543.47	544.21	bone w/ coal streaks, SEWICKLEY No. 9		ac, cv, ev		0.00
0.07	544.21	544.28	shale, blk, churned		ac, cm, em		0.00
1.42	544.28	545.70	claystone, dk gy		cv, ev		0.00
1.05	545.70	546.75	shale, gy, sandy		cm, em		0.00
18.20	546.75	564.95	sandstone, gy, sh streaks		cs, es	y	18.20
2.20	564.95	567.15	sandstone, gy, massive		cs, es	y	2.20
2.45	567.15	569.60	sandstone, gy, sh streaks		cs, es	y	2.45
5.99	569.60	575.59	shale, dk gy, layered		cm, em		0.00
0.08	575.59	575.67	coal w/ bone streaks, FISHPOT		ac, cv, ev		0.00
0.48	575.67	576.15	shale, blk, churned		ac, cm, em		0.00
0.06	576.15	576.21	coal w/ bone streaks		ac, cv, ev		0.00
0.25	576.21	576.46	sandstone, gy, coal streaks		cs, es	y	0.25
0.30	576.46	576.76	coal w/ bone streaks		ac, cv, ev		0.00
0.16	576.76	576.92	limestone, shaley		ak, cs, es	y	0.16
0.76	576.92	577.68	coal w/ sh streaks		ac, cv, ev		0.00
0.33	577.68	578.01	coal w/ bone streaks		ac, cv, ev		0.00
0.42	578.01	578.43	shale, blk, coal streaks		ac, cm, em		0.00
0.26	578.43	578.69	coal w/ bone streaks		ac, cv, ev		0.00
0.08	578.69	578.77	shale, blk, churned		ac, cm, em		0.00
0.25	578.77	579.02	bone w/ coal streaks		ac, cv, ev		0.00
0.08	579.02	579.10	shale, blk, churned		ac, cm, em		0.00
0.60	579.10	579.70	shale, dk gy, churned		cm, em		0.00
2.05	579.70	581.75	limestone, shaley, nodular		ak, cs, es	y	2.05
1.10	581.75	582.85	shale, dk gy, ls nods, churned		ak, cm, em		0.00
3.75	582.85	586.60	limestone, nodular		ak, cs, es	y	3.75
0.65	586.60	587.25	limestone, shaley, nodular		ak, cs, es	y	0.65
1.10	587.25	588.35	limestone, nodular		ak, cs, es	y	1.10
1.70	588.35	590.05	limestone, mosaic		ak, cs, es	y	1.70
1.40	590.05	591.45	limestone, shaley, nodular		ak, cs, es	y	1.40
2.30	591.45	593.75	limestone, massive		ak, cs, es	y	2.30
3.25	593.75	597.00	limestone, shaley, nodular		ak, cs, es	y	3.25
2.35	597.00	599.35	shale, gy, ss streaks, ls nods		ak, cm, em		0.00
1.00	599.35	600.35	shale, dk gy, ls nods, churned		ak, cm, em		0.00
0.50	600.35	600.85	sandstone, gy, sh streaks		cs, es	y	0.50
1.30	600.85	602.15	shale, dk gy, ss layers		cm, em		0.00
3.40	602.15	605.55	shale, dk gy, ls nods, churned		ak, cm, em		0.00
3.10	605.55	608.65	limestone, massive		ak, cs, es	y	3.10
2.15	608.65	610.80	limestone, shaley, layered		ak, cs, es	y	2.15
5.45	610.80	616.25	claystone, gy, ls nods		ak, cv, ev		0.00
1.80	616.25	618.05	shale, dk gy, ls nods, churned		ak, cm, em		0.00
0.65	618.05	618.70	limestone, massive		ak, cs, es	y	0.65
0.25	618.70	618.95	shale, dk gy, ls nods, churned		ak, cm, em		0.00
3.30	618.95	622.25	limestone, massive		ak, cs, es	y	3.30
0.45	622.25	622.70	shale, dk gy, ls nods, churned		ak, cm, em		0.00
1.75	622.70	624.45	limestone, massive		ak, cs, es	y	1.75
1.50	624.45	625.95	limestone, shaley, massive		ak, cs, es	y	1.50
2.45	625.95	628.40	limestone, massive		ak, cs, es	y	2.45
0.55	628.40	628.95	shale, dk gy, ls nods, churned		ak, cm, em		0.00
0.65	628.95	629.60	limestone, nodular		ak, cs, es	y	0.65
0.45	629.60	630.05	shale, dk gy, ls nods, churned		ak, cm, em		0.00
2.00	630.05	632.05	limestone, massive		ak, cs, es	y	2.00
1.15	632.05	633.20	limestone, shaley, nodular		ak, cs, es	y	1.15
2.35	633.20	635.55	claystone, gy, ls nods		ak, cv, ev		0.00
0.65	635.55	636.20	limestone, shaley, nodular		ak, cs, es	y	0.65
0.55	636.20	636.75	claystone, dk gy, ls nods		ak, cv, ev		0.00
1.05	636.75	637.80	claystone, green, ls nods		ak, cv, ev		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-18

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.35	637.80	639.15	claystone, dk gy, ls nods		ak, cv, ev		0.00
0.80	639.15	639.95	claystone, blk/ tan, layered		ac, cv, ev		0.00
0.74	639.95	640.69	claystone, blk/ tan, churned		ac, cv, ev		0.00
0.09	640.69	640.78	claystone, blk/ tan, layered		ac, cv, ev		0.00
0.15	640.78	640.93	shale, blk, churned		ac, cm, em		0.00
0.10	640.93	641.03	claystone, blk/ tan, churned		ac, cv, ev		0.00
0.13	641.03	641.16	shale, blk, coal streaks		ac, cm, em		0.00
0.40	641.16	641.56	coal w/ bone streaks, PITTSBURGH No. 8 ROOF COAL		ac, cv, ev		0.00
0.08	641.56	641.64	shale, dk gy, churned		cm, em		0.00
0.11	641.64	641.75	coal w/ bone streaks		ac, cv, ev		0.00
0.03	641.75	641.78	shale, blk, coal streaks		ac, cm, em		0.00
0.20	641.78	641.98	shale, blk, churned		ac, cm, em		0.00
0.53	641.98	642.51	shale, dk gy, churned		cm, em		0.00
0.15	642.51	642.66	shale, blk, churned		ac, cm, em		0.00
0.16	642.66	642.82	coal w/ pyrite, PITTSBURGH No. 8		ac, cv, ev		0.00
1.11	642.82	643.93	coal		ac, cv, ev		0.00
0.95	643.93	644.88	coal w/ bone streaks		ac, cv, ev		0.00
0.03	644.88	644.91	shale, blk, coal streaks		ac, cm, em		0.00
0.39	644.91	645.30	coal		ac, cv, ev		0.00
0.12	645.30	645.42	shale, blk, coal streaks		ac, cm, em		0.00
1.61	645.42	647.03	coal		ac, cv, ev		0.00
0.03	647.03	647.06	shale, blk, coal streaks		ac, cm, em		0.00
1.24	647.06	648.30	coal		ac, cv, ev		0.00
0.28	648.30	648.58	shale, blk, churned		ac, cm, em		0.00
1.60	648.58	650.18	shale, dk gy, churned		cm, em		0.00
0.75	650.18	650.93	claystone, dk gy, ls nods		ak, cv, ev		0.00
0.35	650.93	651.28	limestone, shaley, nodular		ak, cs, es	y	0.35
4.75	651.28	656.03	claystone, dk gy, ls nods		ak, cv, ev		0.00
1.80	656.03	657.83	shale, gy, sandy, ls nods, churned		ak, cm, em		0.00
4.26	657.83	662.09	sandstone, gy, sh streaks		cs, es	y	4.26
Total Depth			662.09				180.97

Acid Producing: ac

Alkaline Producing: ak

Compactable: c (v-very, m-moderate, s-slight)

Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit

180.97

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit

27%

	Thickness (Ft.)	Percent (%)
Hard Rock:	180.97	27%
Soft Rock:	481.12	73%
	<u>662.09</u>	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-18

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	Physical Properties CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)	Thickness of Hard Rock (ft.)
<u>Stratum</u>	Neutralization Potential, tons/10 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %			
Roof, 10 ft.	137.65	1.73	1.47	54.18	-108.77	
Coal						
Bottom, 10 ft.	326.00	1.73	1.63	54.05	-272.00	

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-20

Field Engineer: Kim Cecil
 Surface Elevation: 1,325.00
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 688450
 Easting: 2426390
 Drilling Company: Kerogen Resources

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
20.00	0.00	20.00	Casing				0.00
0.95	20.00	20.95	Shale, gy	Y	cm, em		0.00
1.00	20.95	21.95	Shale, gy, ls nods		ak, cm, em		0.00
1.05	21.95	23.00	Limestone, shaley, nodular	Y	ak, cs, es	y	1.05
5.70	23.00	28.70	Claystone, dk gy, ls nods	Y	ak, cv, ev		0.00
1.00	28.70	29.70	Core loss				0.00
1.65	29.70	31.35	Claystone, red/ gy		cv, ev		0.00
1.30	31.35	32.65	Claystone, gy		cv, ev		0.00
2.15	32.65	34.80	Sandstone, gy, crossbeds	Y	cs, es	y	2.15
3.85	34.80	38.65	Shale, gy, interbedded ss	Y	cm, em		0.00
1.60	38.65	40.25	Shale, gy, sandy	Y	cm, em		0.00
2.15	40.25	42.40	Claystone, gy		cv, ev		0.00
7.20	42.40	49.60	Claystone, red		cv, ev		0.00
7.95	49.60	57.55	Shale, gy, sandy, ls nods	Y	ak, cm, em		0.00
4.70	57.55	62.25	Shale, gy, sandy	Y	cm, em		0.00
3.30	62.25	65.55	Sandstone, gy, sh stks		cs, es	y	3.30
1.70	65.55	67.25	Claystone, gy		cv, ev		0.00
4.25	67.25	71.50	Sandstone, gy, massive	Y	cs, es	y	4.25
1.30	71.50	72.80	Shale, gy, ls nods		ak, cm, em		0.00
0.80	72.80	73.60	Shale, gy, sandy		cm, em		0.00
7.20	73.60	80.80	Shale, gy, ls nods		ak, cm, em		0.00
0.35	80.80	81.15	Shale, red/ gy		cm, em		0.00
1.55	81.15	82.70	Claystone, dk gy		cv, ev		0.00
0.40	82.70	83.10	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.05	83.10	85.15	Claystone, dk gy		cv, ev		0.00
0.25	85.15	85.40	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.65	85.40	87.05	Shale, dk gy		cm, em		0.00
5.85	87.05	92.90	Shale, gy, sandy, ls nods		ak, cm, em		0.00
0.85	92.90	93.75	Shale, dk gy, ls nods		ak, cm, em		0.00
5.90	93.75	99.65	Shale, gy, sandy, ls nods		ak, cm, em		0.00
3.40	99.65	103.05	Shale, gy, ls nods		ak, cm, em		0.00
0.40	103.05	103.45	Claystone, red/ gy		cv, ev		0.00
3.25	103.45	106.70	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.55	106.70	108.25	Claystone, dk gy		cv, ev		0.00
1.00	108.25	109.25	Shale, gy, sandy		cm, em		0.00
6.70	109.25	115.95	Claystone, dk gy, ls nods		ak, cv		0.00
4.60	115.95	120.55	Shale, gy, sandy, ls nods		ak, cm, em		0.00
3.45	120.55	124.00	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
7.10	124.00	131.10	Claystone, gy, ls nods		ak, cv, ev		0.00
1.15	131.10	132.25	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.90	132.25	135.15	Sandstone, gy, crossbeds		cs, es	y	2.90
3.10	135.15	138.25	Shale, gy, sandy		cm, em		0.00
3.00	138.25	141.25	Shale, gy, ls nods		ak, cm, em		0.00
1.90	141.25	143.15	Shale, red/ gy		cm, em		0.00
1.00	143.15	144.15	Claystone, gy		cv, ev		0.00
3.90	144.15	148.05	Claystone, red		cv, ev		0.00
1.65	148.05	149.70	Claystone, red/ gy		cv, ev		0.00
0.95	149.70	150.65	Claystone, gy, ls nods		ak, cv, ev		0.00
2.65	150.65	153.30	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
0.40	153.30	153.70	Shale, gy, sandy		cm, em		0.00
0.45	153.70	154.15	Claystone, red/ gy		cv, ev		0.00
1.20	154.15	155.35	Shale, gy, sandy		cm, em		0.00
1.70	155.35	157.05	Claystone, red/ gy		cv, ev		0.00
0.35	157.05	157.40	Claystone, gy		cv, ev		0.00
0.25	157.40	157.65	Claystone, red		cv, ev		0.00
0.80	157.65	158.45	Claystone, red/ gy		cv, ev		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-20

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.10	158.45	159.55	Shale, gy		cm, em		0.00
3.60	159.55	163.15	Shale, gy, sandy		cm, em		0.00
0.30	163.15	163.45	Shale, dk gy		cm, em		0.00
12.10	163.45	175.55	Shale, gy, sandy		cm, em		0.00
2.05	175.55	177.60	Shale, red		cm, em		0.00
1.35	177.60	178.95	Shale, dk gy		cm, em		0.00
4.15	178.95	183.10	Shale, dk gy, ls nods		ak, cm, em		0.00
0.40	183.10	183.50	Limestone, shaley, nodular		ak, cs, es	y	0.40
0.95	183.50	184.45	Shale, gy, ls nods		ak, cm, em		0.00
0.45	184.45	184.90	Limestone, shaley, nodular		ak, cs, es	y	0.45
4.50	184.90	189.40	Shale, gy, ls nods		ak, cm, em		0.00
0.40	189.40	189.80	Shale, red/ gy		cm, em		0.00
1.75	189.80	191.55	Shale, grn, ls nods		ak, cm, em		0.00
0.40	191.55	191.95	Shale, gy, ls nods		ak, cm, em		0.00
0.55	191.95	192.50	Limestone, shaley, nodular		ak, cs, es	y	0.55
0.45	192.50	192.95	Shale, gy, ls nods		ak, cm, em		0.00
0.30	192.95	193.25	Limestone, shaley, nodular		ak, cs, es	y	0.30
1.70	193.25	194.95	Shale, gy, ls nods		ak, cm, em		0.00
9.20	194.95	204.15	Claystone, red		cv, ev		0.00
1.00	204.15	205.15	Claystone, red/ gy		cv, ev		0.00
3.65	205.15	208.80	Shale, gy, ls nods		ak, cm, em		0.00
0.80	208.80	209.60	Claystone, red/ gy		cv, ev		0.00
2.20	209.60	211.80	Claystone, gy, ls nods		ak, cv, ev		0.00
0.80	211.80	212.60	Shale, gy, sandy, ls nods		ak, cm, em		0.00
3.50	212.60	216.10	Shale, gy, ls nods		ak, cm, em		0.00
3.90	216.10	220.00	Claystone, red/ gy		cv, ev		0.00
2.20	220.00	222.20	Claystone, red		cv, ev		0.00
5.75	222.20	227.95	Shale, red/ gy		cm, em		0.00
0.65	227.95	228.60	Shale, gy		cm, em		0.00
0.75	228.60	229.35	Shale, red/ gy		cm, em		0.00
0.40	229.35	229.75	Shale, gy		cm, em		0.00
1.50	229.75	231.25	Shale, red/ gy		cm, em		0.00
0.70	231.25	231.95	Claystone, gy		cv, ev		0.00
1.15	231.95	233.10	Shale, dk gy, ls nods		ak, cm, em		0.00
1.40	233.10	234.50	Limestone, shaley, nodular		ak, cs, es	y	1.40
0.95	234.50	235.45	Shale, gy, sandy		cm, em		0.00
2.75	235.45	238.20	Shale, gy, sandy, ls nods		ak, cm, em		0.00
0.65	238.20	238.85	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
2.05	238.85	240.90	Shale, gy, ls nods		ak, cm, em		0.00
0.45	240.90	241.35	Shale, dk gy		cm, em		0.00
0.85	241.35	242.20	Shale, red/ gy		cm, em		0.00
3.05	242.20	245.25	Shale, gy, ls nods		ak, cm, em		0.00
7.40	245.25	252.65	Shale, gy, sandy, ls nods		ak, cm, em		0.00
2.05	252.65	254.70	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
8.20	254.70	262.90	Sandstone, gy, crossbeds		cs, es	y	8.20
1.00	262.90	263.90	Sandstone, gy, massive		cs, es	y	1.00
4.20	263.90	268.10	Sandstone, gy, crossbeds		cs, es	y	4.20
0.55	268.10	268.65	Shale, dk gy		cm, em		0.00
0.75	268.65	269.40	Shale, gy, sandy		cm, em		0.00
0.15	269.40	269.55	Shale, dk gy		cm, em		0.00
0.85	269.55	270.40	Limestone, shaley, nodular		ak, cs, es	y	0.85
12.55	270.40	282.95	Shale, dk gy, ls nods		ak, cm, em		0.00
8.05	282.95	291.00	Shale, dk gy		cm, em		0.00
0.60	291.00	291.60	Shale, blk		ac, cm, em		0.00
0.03	291.60	291.63	Pyrite		ac, cs, es		0.00
0.91	291.63	292.54	Coal, bone stks, WASHINGTON No. 12		ac, cv, ev		0.00
0.74	292.54	293.28	Coal, sh stks		ac, cv, ev		0.00
0.83	293.28	294.11	Coal, bone stks		ac, cv, ev		0.00
0.75	294.11	294.86	Coal, sh stks		ac, cv, ev		0.00
0.16	294.86	295.02	Shale, dk gy		cm, em		0.00
0.49	295.02	295.51	Shale, blk, coal stks		ac, cm, em		0.00
1.00	295.51	296.51	Coal, bone stks		ac, cv, ev		0.00
0.09	296.51	296.60	Shale, blk		ac, cm, em		0.00
1.70	296.60	298.30	Claystone, dk gy		cv, ev		0.00
11.05	298.30	309.35	Shale, dk gy, ls nods		ak, cm, em		0.00
6.35	309.35	315.70	Claystone, dk gy, ls nods		ak, cv, ev		0.00
3.05	315.70	318.75	Shale, gy, sandy, ls nods		ak, cm, em		0.00
2.35	318.75	321.10	Shale, dk gy, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-20

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.85	321.10	321.95	Shale, gy, sandy, ls nods		ak, cm, em		0.00
2.50	321.95	324.45	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.10	324.45	326.55	Shale, gy, ls nods		ak, cm, em		0.00
4.95	326.55	331.50	Shale, gy, sandy, ls nods		ak, cm, em		0.00
4.70	331.50	336.20	Claystone, dk gy, ls nods		ak, cv, ev		0.00
5.45	336.20	341.65	Shale, gy, ls nods		ak, cm, em		0.00
0.65	341.65	342.30	Shale, gy		cm, em		0.00
0.29	342.30	342.59	Shale, blk, coal stks		ac, cm, em		0.00
0.19	342.59	342.78	Coal, bone stks, WAYNESBURG "A"		ac, cv, ev		0.00
0.69	342.78	343.47	Bone, coal stks		ac, cv, ev		0.00
0.02	343.47	343.49	Shale, dk gy		cm, em		0.00
0.96	343.49	344.45	Bone, coal stks		ac, cv, ev		0.00
0.47	344.45	344.92	Shale, blk, coal stks		ac, cm, em		0.00
1.84	344.92	346.76	Coal, sh layers		ac, cv, ev		0.00
0.02	346.76	346.78	Claystone, dk gy		cv, ev		0.00
1.16	346.78	347.94	Bone, coal stks		ac, cv, ev		0.00
0.06	347.94	348.00	Shale, blk		ac, cm, em		0.00
0.42	348.00	348.42	Bone, coal layers		ac, cv, ev		0.00
0.24	348.42	348.66	Shale, blk, coal stks		ac, cm, em		0.00
0.07	348.66	348.73	Shale, blk		ac, cm, em		0.00
1.02	348.73	349.75	Limestone, shaley, nodular		ak, cs, es	y	1.02
0.20	349.75	349.95	Shale, blk		ac, cm, em		0.00
0.05	349.95	350.00	Limestone		ak, cs, es	y	0.05
0.45	350.00	350.45	Shale, blk		ac, cm, em		0.00
0.80	350.45	351.25	Limestone, shaley, nodular		ak, cs, es	y	0.80
0.70	351.25	351.95	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.05	351.95	353.00	Limestone, shaley, nodular		ak, cs, es	y	1.05
1.85	353.00	354.85	Shale, dk gy, ls nods		ak, cm, em		0.00
3.20	354.85	358.05	Limestone, shaley, nodular		ak, cs, es	y	3.20
1.90	358.05	359.95	Shale, gy, ls nods		ak, cm, em		0.00
2.30	359.95	362.25	Shale, gy, sandy, ls nods		ak, cm, em		0.00
1.20	362.25	363.45	Sandstone, gy, sh stks		cs, es	y	1.20
2.90	363.45	366.35	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.70	366.35	368.05	Shale, gy, ls nods		ak, cm, em		0.00
0.35	368.05	368.40	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
5.00	368.40	373.40	Shale, gy, ls nods		ak, cm, em		0.00
0.70	373.40	374.10	Claystone, dk gy		cv, ev		0.00
0.25	374.10	374.35	Limestone, shaley, nodular		ak, cs, es	y	0.25
3.75	374.35	378.10	Shale, gy, ls nods		ak, cm, em		0.00
0.75	378.10	378.85	Shale, dk gy, ls nods		ak, cm, em		0.00
1.95	378.85	380.80	Claystone, dk gy		cv, ev		0.00
0.70	380.80	381.50	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.20	381.50	382.70	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.85	382.70	385.55	Shale, dk gy, ls nods		ak, cm, em		0.00
0.43	385.55	385.98	Shale, dk gy		cm, em		0.00
0.27	385.98	386.25	Shale, blk		ac, cm, em		0.00
0.13	386.25	386.38	Shale, blk, coal stks		ac, cm, em		0.00
0.43	386.38	386.81	Coal, bone stks, WAYNESBURG No.11		ac, cv, ev		0.00
0.79	386.81	387.60	Bone, coal stks		ac, cv, ev		0.00
0.68	387.60	388.28	Coal, pyrite		ac, cv, ev		0.00
0.37	388.28	388.65	Shale, blk		ac, cm, em		0.00
1.15	388.65	389.80	Shale, gy, ls nods		ak, cm, em		0.00
6.60	389.80	396.40	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
6.10	396.40	402.50	Shale, dk gy, ss stks		cm, em		0.00
1.20	402.50	403.70	Shale, dk gy, interbedded ss		cm, em		0.00
0.54	403.70	404.24	Claystone, dk gy		cv, ev		0.00
0.41	404.24	404.65	Coal, sh stks, LITTLE WAYNESBURG		ac, cv, ev		0.00
2.55	404.65	407.20	Shale, dk gy, ls nods		ak, cm, em		0.00
3.05	407.20	410.25	Limestone, shaley, nodular		ak, cs, es	y	3.05
2.10	410.25	412.35	Claystone, dk gy		cv, ev		0.00
1.30	412.35	413.65	Shale, dk gy, ls nods		ak, cm, em		0.00
0.70	413.65	414.35	Limestone, shaley, nodular		ak, cs, es	y	0.70
1.55	414.35	415.90	Shale, dk gy, ls nods		ak, cm, em		0.00
0.30	415.90	416.20	Limestone, massive		ak, cs, es	y	0.30
0.60	416.20	416.80	Limestone, mosaic		ak, cs, es	y	0.60
0.70	416.80	417.50	Limestone, massive		ak, cs, es	y	0.70
0.90	417.50	418.40	Shale, dk gy, ls nods		ak, cm, em		0.00
0.40	418.40	418.80	Limestone, massive		ak, cs, es	y	0.40

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-20

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.30	418.80	419.10	Limestone, mosaic		ak, cs, es	y	0.30
0.65	419.10	419.75	Limestone, shaley, nodular		ak, cs, es	y	0.65
8.85	419.75	428.60	Shale, dk gy, ls nods		ak, cm, em		0.00
1.50	428.60	430.10	Limestone, shaley, layered		ak, cs, es	y	1.50
0.25	430.10	430.35	Claystone, grn		cv, ev		0.00
0.20	430.35	430.55	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.60	430.55	433.15	Shale, dk gy, ls nods		ak, cm, em		0.00
4.65	433.15	437.80	Shale, gy, sandy, ls nods		ak, cm, em		0.00
3.65	437.80	441.45	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
0.90	441.45	442.35	Shale, dk gy, ls nods		ak, cm, em		0.00
0.55	442.35	442.90	Shale, dk gy		cm, em		0.00
1.00	442.90	443.90	Shale, red		cm, em		0.00
0.35	443.90	444.25	Shale, dk gy		cm, em		0.00
0.10	444.25	444.35	Shale, red		cm, em		0.00
0.15	444.35	444.50	Shale, dk gy		cm, em		0.00
0.25	444.50	444.75	Limestone, shaley, massive		ak, cs, es	y	0.25
0.70	444.75	445.45	Shale, dk gy, ls nods		ak, cm, em		0.00
1.25	445.45	446.70	Limestone, shaley, nodular		ak, cs, es	y	1.25
5.40	446.70	452.10	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	452.10	452.70	Claystone, red, ls nods		ak, cv, ev		0.00
4.35	452.70	457.05	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	457.05	457.65	Limestone, massive		ak, cs, es	y	0.60
0.90	457.65	458.55	Shale, dk gy, ls nods		ak, cm, em		0.00
1.45	458.55	460.00	Limestone, massive		ak, cs, es	y	1.45
1.35	460.00	461.35	Shale, dk gy, ls nods		ak, cm, em		0.00
1.75	461.35	463.10	Limestone, shaley, nodular		ak, cs, es	y	1.75
2.00	463.10	465.10	Shale, gy, ls nods		ak, cm, em		0.00
1.30	465.10	466.40	Limestone, shaley, layered		ak, cs, es	y	1.30
1.00	466.40	467.40	Shale, gy, ls nods		ak, cm, em		0.00
1.00	467.40	468.40	Limestone, shaley, nodular		ak, cs, es	y	1.00
0.55	468.40	468.95	Limestone, massive		ak, cs, es	y	0.55
0.35	468.95	469.30	Claystone, grn, ls nods		ak, cv, ev		0.00
1.05	469.30	470.35	Limestone, massive		ak, cs, es	y	1.05
1.80	470.35	472.15	Shale, dk gy, ls nods		ak, cm, em		0.00
0.95	472.15	473.10	Limestone, shaley, nodular		ak, cs, es	y	0.95
5.20	473.10	478.30	Shale, gy, ls nods		ak, cm, em		0.00
0.85	478.30	479.15	Claystone, grn, ls nods		ak, cv, ev		0.00
1.05	479.15	480.20	Shale, gy, ss stks		cm, em		0.00
4.30	480.20	484.50	Shale, dk gy, ls nods		ak, cm, em		0.00
2.20	484.50	486.70	Limestone, massive		ak, cs, es	y	2.20
1.40	486.70	488.10	Shale, grn, ls nods		ak, cm, em		0.00
1.65	488.10	489.75	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	489.75	490.35	Limestone, shaley, nodular		ak, cs, es	y	0.60
3.20	490.35	493.55	Shale, gy, ls nods		ak, cm, em		0.00
2.05	493.55	495.60	Limestone, shaley, nodular		ak, cs, es	y	2.05
3.60	495.60	499.20	Shale, dk gy, ls nods		ak, cm, em		0.00
2.65	499.20	501.85	Limestone, massive		ak, cs, es	y	2.65
1.45	501.85	503.30	Shale, dk gy, ls nods		ak, cm, em		0.00
0.50	503.30	503.80	Limestone, massive		ak, cs, es	y	0.50
3.15	503.80	506.95	Shale, dk gy, ls nods		ak, cm, em		0.00
3.50	506.95	510.45	Limestone, massive		ak, cs, es	y	3.50
0.50	510.45	510.95	Shale, dk gy, ls nods		ak, cm, em		0.00
0.55	510.95	511.50	Limestone, massive		ak, cs, es	y	0.55
0.70	511.50	512.20	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	512.20	512.95	Limestone, shaley, nodular		ak, cs, es	y	0.75
2.95	512.95	515.90	Shale, dk gy, ls nods		ak, cm, em		0.00
6.00	515.90	521.90	Limestone, nodular		ak, cs, es	y	6.00
0.60	521.90	522.50	Shale, dk gy		cm, em		0.00
1.40	522.50	523.90	Limestone, layered, cly stks		ak, cs, es	y	1.40
1.25	523.90	525.15	Limestone, shaley, nodular		ak, cs, es	y	1.25
1.10	525.15	526.25	Shale, gy, ls nods		ak, cm, em		0.00
1.40	526.25	527.65	Limestone, massive		ak, cs, es	y	1.40
0.65	527.65	528.30	Shale, grn, ls nods		ak, cm, em		0.00
0.25	528.30	528.55	Shale, dk gy		cm, em		0.00
0.30	528.55	528.85	Shale, grn		cm, em		0.00
1.25	528.85	530.10	Limestone, shaley, nodular		ak, cs, es	y	1.25
3.60	530.10	533.70	Shale, gy, ls nods		ak, cm, em		0.00
4.85	533.70	538.55	Limestone, massive		ak, cs, es	y	4.85

DIAMOND DRILL HOLE: CLC-2002-20

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
3.95	538.55	542.50	Limestone, shaley, nodular		ak, cs, es	y	3.95
1.00	542.50	543.50	Shale, grn, ls nods		ak, cm, em		0.00
2.45	543.50	545.95	Shale, dk gy, ls nods		ak, cm, em		0.00
0.35	545.95	546.30	Limestone, shaley, nodular		ak, cs, es	y	0.35
0.35	546.30	546.65	Shale, dk gy, ls nods		ak, cm, em		0.00
1.00	546.65	547.65	Shale, dk gy		cm, em		0.00
0.45	547.65	548.10	Shale, blk, coal stks		ac, cm, em		0.00
0.68	548.10	548.78	Coal, bone stks, SEWICKLEY No. 9		ac, cv, ev		0.00
0.62	548.78	549.40	Bone, coal stks		ac, cv, ev		0.00
0.25	549.40	549.65	Shale, blk, coal stks		ac, cm, em		0.00
0.40	549.65	550.05	Shale, dk gy		cm, em		0.00
1.95	550.05	552.00	Shale, dk gy, ls nods		ak, cm, em		0.00
3.65	552.00	555.65	Shale, gy, ls nods		ak, cm, em		0.00
1.60	555.65	557.25	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.70	557.25	559.95	Sandstone, gy, sh stks		cs, es	y	2.70
1.15	559.95	561.10	Shale, gy, sandy		cm, em		0.00
5.10	561.10	566.20	Shale, gy, ss stks		cm, em		0.00
5.35	566.20	571.55	Sandstone, gy, crossbeds		cs, es	y	5.35
7.95	571.55	579.50	Sandstone, gy, sh stks		cs, es	y	7.95
2.55	579.50	582.05	Sandstone, gy, crossbeds, churned		cs, es	y	2.55
0.90	582.05	582.95	Claystone, dk gy		cv, ev		0.00
0.10	582.95	583.05	Shale, blk, coal stks		ac, cm, em		0.00
0.18	583.05	583.23	Coal, bone stks, FISHPOT		ac, cv, ev	y	0.00
0.07	583.23	583.30	Shale, blk		ac, cm, em		0.00
0.38	583.30	583.68	Coal, bone stks		ac, cv, ev		0.00
0.26	583.68	583.94	Coal, sh layers		ac, cv, ev		0.00
0.19	583.94	584.13	Coal, bone stks		ac, cv, ev		0.00
0.28	584.13	584.41	Shale, blk		ac, cm, em		0.00
0.06	584.41	584.47	Shale, blk, coal stks		ac, cm, em		0.00
0.55	584.47	585.02	Coal, bone stks		ac, cv, ev		0.00
0.58	585.02	585.60	Claystone, dk gy		cv, ev		0.00
1.45	585.60	587.05	Limestone, massive		ak, cs, es	y	1.45
1.10	587.05	588.15	Limestone, cly stks		ak, cs, es	y	1.10
0.45	588.15	588.60	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	588.60	589.20	Limestone, massive		ak, cs, es	y	0.60
0.55	589.20	589.75	Limestone, mosaic		ak, cs, es	y	0.55
0.85	589.75	590.60	Limestone, massive		ak, cs, es	y	0.85
0.70	590.60	591.30	Limestone, layered		ak, cs, es	y	0.70
0.15	591.30	591.45	Shale, dk gy, ls nods		ak, cm, em		0.00
1.00	591.45	592.45	Limestone, nodular		ak, cs, es	y	1.00
1.25	592.45	593.70	Limestone, massive		ak, cs, es	y	1.25
0.50	593.70	594.20	Shale, dk gy, ls nods		ak, cm, em		0.00
1.00	594.20	595.20	Limestone, massive		ak, cs, es	y	1.00
3.30	595.20	598.50	Limestone, shaley, nodular		ak, cs, es	y	3.30
2.10	598.50	600.60	Limestone, massive		ak, cs, es	y	2.10
0.10	600.60	600.70	Shale, dk gy, ls nods		ak, cm, em		0.00
2.15	600.70	602.85	Limestone, shaley, nodular		ak, cs, es	y	2.15
3.95	602.85	606.80	Claystone, grn, ls nods		ak, cv, ev		0.00
5.85	606.80	612.65	Shale, gy, ls nods		ak, cm, em		0.00
2.40	612.65	615.05	Shale, dk gy, ls nods		ak, cm, em		0.00
3.05	615.05	618.10	Limestone, massive		ak, cs, es	y	3.05
0.25	618.10	618.35	Shale, dk gy, ls nods		ak, cm, em		0.00
0.35	618.35	618.70	Limestone, massive		ak, cs, es	y	0.35
0.50	618.70	619.20	Shale, dk gy, ls nods		ak, cm, em		0.00
2.35	619.20	621.55	Limestone, shaley, nodular		ak, cs, es	y	2.35
0.50	621.55	622.05	Claystone, grn, ls nods		ak, cv, ev		0.00
1.00	622.05	623.05	Claystone, gy, ls nods		ak, cv, ev		0.00
1.65	623.05	624.70	Claystone, grn, ls nods		ak, cv, ev		0.00
0.25	624.70	624.95	Shale, blk, coal stks		ac, cm, em		0.00
0.15	624.95	625.10	Shale, blk		ac, cm, em		0.00
1.50	625.10	626.60	Shale, gy, sandy, ls nods		ak, cm, em		0.00
1.00	626.60	627.60	Shale, dk gy, ls nods		ak, cm, em		0.00
0.85	627.60	628.45	Limestone, shaley, nodular		ak, cs, es	y	0.85
0.85	628.45	629.30	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.35	629.30	629.65	Limestone, shaley, nodular		ak, cs, es	y	0.35
0.35	629.65	630.00	Shale, dk gy, ls nods		ak, cm, em		0.00
6.05	630.00	636.05	Limestone, massive		ak, cs, es	y	6.05
1.25	636.05	637.30	Shale, dk gy, ls nods		ak, cm, em		0.00

DIAMOND DRILL HOLE: CLC-2002-20

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.45	637.30	637.75	Limestone, massive		ak, cs, es	y	0.45
3.30	637.75	641.05	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.45	641.05	641.50	Limestone, shaley, nodular		ak, cs, es	y	0.45
4.25	641.50	645.75	Claystone, gy, ls nods		ak, cv, ev		0.00
1.35	645.75	647.10	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.10	647.10	647.20	Shale, blk		ac, cm, em		0.00
0.25	647.20	647.45	Claystone, dk gy		cv, ev		0.00
0.33	647.45	647.78	Coal, pyrite, PITTSBURGH No. 8 ROOF COAL		ac, cv, ev		0.00
0.65	647.78	648.43	Coal, bone stks		ac, cv, ev		0.00
0.02	648.43	648.45	Shale, dk gy		cm, em		0.00
0.14	648.45	648.59	Coal, bone stks		ac, cv, ev		0.00
0.73	648.59	649.32	Claystone, gy		cv, ev		0.00
0.15	649.32	649.47	Shale, blk		ac, cm, em		0.00
0.45	649.47	649.92	Bone, coal layers, PITTSBURGH No. 8		ac, cv, ev		0.00
0.59	649.92	650.51	Coal, bone stks		ac, cv, ev		0.00
0.96	650.51	651.47	Coal		ac, cv, ev		0.00
0.05	651.47	651.52	Shale, blk		ac, cm, em		0.00
0.41	651.52	651.93	Coal		ac, cv, ev		0.00
0.15	651.93	652.08	Bone		ac, cv, ev		0.00
1.49	652.08	653.57	Coal		ac, cv, ev		0.00
0.03	653.57	653.60	Shale, blk		ac, cm, em		0.00
1.22	653.60	654.82	Coal		ac, cv, ev		0.00
0.05	654.82	654.87	Shale, blk		ac, cm, em		0.00
1.95	654.87	656.82	Claystone, dk gy		cv, ev		0.00
4.20	656.82	661.02	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.80	661.02	663.82	Shale, gy, sandy, ls nods		ak, cm, em		0.00
0.85	663.82	664.67	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.40	664.67	667.07	Shale, gy, sandy, ls nods		ak, cm, em		0.00
1.30	667.07	668.37	Shale, gy, ss stks		cm, em		0.00
Total Depth		668.37					138.67

Acid Producing: ac
 Alkaline Producing: ak
 Compactible: c (v-very, m-moderate, s-slight)
 Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit 138.67

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit 24%

	Thickness (Ft.)	Percent (%)
Hard Rock:	138.67	24%
Soft Rock:	432.88	76%
	571.55	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	174.24	2.31	1.77	72.37	-101.75
Coal					
Bottom, 10 ft.	106.70	2.65	2.52	82.80	-24.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-23

Field Engineer: Kim Cecil
 Surface Elevation: 1260
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 684790
 Easting: 2430800
 Drilling Company: Kerogen Resources

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
24.00	0.00	24.00	Casing				0.00
13.80	24.00	37.80	Shale, gy, ss stks	Y	cm, em		0.00
1.60	37.80	39.40	Shale, red/ gy	Y	cm, em		0.00
5.80	39.40	45.20	Claystone, gy		cv, ev		0.00
1.45	45.20	46.65	Limestone, shaley, layered		ak, cs, es	y	1.45
1.45	46.65	48.10	Shale, dk gy		cm, em		0.00
2.10	48.10	50.20	Limestone, shaley, nodular		ak, cs, es	y	2.10
3.50	50.20	53.70	Shale, gy, ls nods		ak, cm, em		0.00
2.40	53.70	56.10	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
4.65	56.10	60.75	Shale, grn, ls nods		ak, cm, em		0.00
3.55	60.75	64.30	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.20	64.30	66.50	Sandstone, gy, sh stks		cs, es	y	2.20
2.15	66.50	68.65	Sandstone, gy, massive		cs, es	y	2.15
0.75	68.65	69.40	Sandstone, gy, sh stks, calc. cemented		cs, es	y	0.75
1.20	69.40	70.60	Shale, dk gy		cm, em		0.00
0.90	70.60	71.50	Shale, gy, sandy, ls nods		ak, cm, em		0.00
2.50	71.50	74.00	Sandstone, gy, massive		cs, es	y	2.50
1.40	74.00	75.40	Sandstone, gy, sh stks, calc. cemented		cs, es	y	1.40
1.95	75.40	77.35	Shale, gy, interbedded ss, ls nods		ak, cm, em		0.00
1.60	77.35	78.95	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
3.15	78.95	82.10	Shale, dk gy, ls nods		ak, cm, em		0.00
1.10	82.10	83.20	Claystone, red/ gy		cv, ev		0.00
1.20	83.20	84.40	Claystone, gy		cv, ev		0.00
4.10	84.40	88.50	Claystone, red		cv, ev		0.00
2.15	88.50	90.65	Claystone, red/ gy		cv, ev		0.00
3.45	90.65	94.10	Shale, gy, sandy, ls nods		ak, cm, em		0.00
1.65	94.10	95.75	Shale, gy, ss stks		cm, em		0.00
7.75	95.75	103.50	Sandstone, gy, sh stks		cs, es	y	7.75
2.90	103.50	106.40	Sandstone, gy, crossbedded		cs, es	y	2.90
6.95	106.40	113.35	Sandstone, gy, massive		cs, es	y	6.95
1.95	113.35	115.30	Sandstone, gy, sh stks		cs, es	y	1.95
0.70	115.30	116.00	Shale, dk gy		cm, em		0.00
3.70	116.00	119.70	Claystone, red/ gy		cv, ev		0.00
1.50	119.70	121.20	Shale, gy		cm, em		0.00
0.90	121.20	122.10	Shale, red/ gy		cm, em		0.00
3.60	122.10	125.70	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	125.70	126.30	Limestone, shaley, nodular		ak, cs, es	y	0.60
2.90	126.30	129.20	Shale, gy, ls nods		ak, cm, em		0.00
0.55	129.20	129.75	Shale, red/ gy, ls nods		ak, cm, em		0.00
3.95	129.75	133.70	Claystone, red, ls nods		ak, cv, ev		0.00
0.25	133.70	133.95	Limestone, shaley, nodular		ak, cs, es	y	0.25
1.05	133.95	135.00	Shale, gy, ls nods		ak, cm, em		0.00
1.60	135.00	136.60	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
9.50	136.60	146.10	Shale, red		cm, em		0.00
3.60	146.10	149.70	Shale, gy, ls nods		ak, cm, em		0.00
1.60	149.70	151.30	Claystone, red/ gy		cv, ev		0.00
1.80	151.30	153.10	Shale, gy, ls nods		ak, cm, em		0.00
2.70	153.10	155.80	Shale, red/ gy, ls nods		ak, cm, em		0.00
5.90	155.80	161.70	Shale, dk gy, ls nods		ak, cm, em		0.00
0.90	161.70	162.60	Shale, red/ gy, ls nods		ak, cm, em		0.00
9.60	162.60	172.20	Shale, gy, ls nods		ak, cm, em		0.00
1.10	172.20	173.30	Shale, red/ gy, ls nods		ak, cm, em		0.00
2.50	173.30	175.80	Shale, dk gy, ls nods		ak, cm, em		0.00
1.30	175.80	177.10	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
3.25	177.10	180.35	Shale, gy, ls nods		ak, cm, em		0.00
2.05	180.35	182.40	Limestone, nodular		ak, cs, es	y	2.05
1.00	182.40	183.40	Shale, gy, ss stks, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-23

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.55	183.40	183.95	Claystone, gy, ls nods		ak, cv, ev		0.00
1.95	183.95	185.90	Limestone, shaley, layered		ak, cs, es	y	1.95
2.30	185.90	188.20	Shale, red/ gy		cm, em		0.00
0.85	188.20	189.05	Shale, gy, ls nods		ak, cm, em		0.00
2.75	189.05	191.80	Limestone, shaley, nodular		ak, cs, es	y	2.75
4.20	191.80	196.00	Shale, gy, ss stks		cm, em		0.00
2.50	196.00	198.50	Shale, gy, interbedded ss		cm, em		0.00
1.30	198.50	199.80	Shale, gy, ss stks		cm, em		0.00
10.00	199.80	209.80	Sandstone, gy, sh stks		cs, es	y	10.00
0.80	209.80	210.60	Sandstone, gy, massive		cs, es	y	0.80
0.45	210.60	211.05	Sandstone, gy, sh clasts		cs, es	y	0.45
2.35	211.05	213.40	Shale, dk gy, ls nods		ak, cm, em		0.00
0.30	213.40	213.70	Limestone, shaley, nodular		ak, cs, es	y	0.30
1.80	213.70	215.50	Shale, dk gy		cm, em		0.00
4.30	215.50	219.80	Shale, gy, sandy, ls nods		ak, cm, em		0.00
5.70	219.80	225.50	Limestone, shaley, layered		ak, cs, es	y	5.70
3.70	225.50	229.20	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	229.20	229.95	Shale, dk gy, coal stks		ac, cm, em		0.00
2.35	229.95	232.30	Claystone, dk gy		cv, ev		0.00
3.75	232.30	236.05	Claystone, blk		ac, cv, ev		0.00
0.70	236.05	236.75	Shale, blk, coal stks		ac, cm, em		0.00
0.07	236.75	236.82	Pyrite		ac, cs, es		0.00
0.73	236.82	237.55	Coal, sh stks, WASHINGTON No. 12		ac, cv, ev		0.00
0.70	237.55	238.25	Coal, bone stks		ac, cv, ev		0.00
0.89	238.25	239.14	Coal		ac, cv, ev		0.00
0.21	239.14	239.35	Coal, bone stks		ac, cv, ev		0.00
0.49	239.35	239.84	Coal, sh stks		ac, cv, ev		0.00
0.23	239.84	240.07	Shale, blk		ac, cm, em		0.00
1.19	240.07	241.26	Coal, bone stks		ac, cv, ev		0.00
11.94	241.26	253.20	Claystone, gy		cv, ev		0.00
2.10	253.20	255.30	Shale, gy, ls nods		ak, cm, em		0.00
0.55	255.30	255.85	Limestone, shaley, nodular		ak, cs, es	y	0.55
4.15	255.85	260.00	Shale, gy, ls nods		ak, cm, em		0.00
3.40	260.00	263.40	Sandstone, gy, sh stks		cs, es	y	3.40
2.70	263.40	266.10	Shale, gy, ls nods		ak, cm, em		0.00
1.90	266.10	268.00	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.25	268.00	269.25	Shale, gy, ls nods		ak, cm, em		0.00
2.35	269.25	271.60	Shale, gy, ss stks		cm, em		0.00
5.20	271.60	276.80	Sandstone, gy, sh stks		cs, es	y	5.20
1.30	276.80	278.10	Shale, gy, interbedded ss, ls nods		ak, cm, em		0.00
1.05	278.10	279.15	Sandstone, gy, sh stks		cs, es	y	1.05
1.35	279.15	280.50	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
0.80	280.50	281.30	Sandstone, gy, sh stks		cs, es	y	0.80
4.60	281.30	285.90	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.25	285.90	287.15	Shale, gy		cm, em		0.00
0.21	287.15	287.36	Shale, blk, coal stks		ac, cm, em		0.00
0.81	287.36	288.17	Coal, bone stks, WAYNESBURG "A"		ac, cv, ev		0.00
0.13	288.17	288.30	Shale, blk		ac, cm, em		0.00
0.22	288.30	288.52	Shale, blk, coal stks		ac, cm, em		0.00
0.11	288.52	288.63	Shale, dk gy		cm, em		0.00
0.35	288.63	288.98	Coal, sh stks		ac, cv, ev		0.00
0.35	288.98	289.33	Bone, coal layers		ac, cv, ev		0.00
1.65	289.33	290.98	Coal		ac, cv, ev		0.00
0.84	290.98	291.82	Coal, sh stks		ac, cv, ev		0.00
0.88	291.82	292.70	Coal, bone stks		ac, cv, ev		0.00
0.02	292.70	292.72	Shale, dk gy		cm, em		0.00
0.14	292.72	292.86	Coal, bone stks		ac, cv, ev		0.00
0.14	292.86	293.00	Shale, dk gy		cm, em		0.00
0.65	293.00	293.65	Limestone, shaley, nodular		ak, cs, es	y	0.65
0.85	293.65	294.50	Shale, blk		ac, cm, em		0.00
1.20	294.50	295.70	Limestone, nodular		ak, cs, es	y	1.20
0.80	295.70	296.50	Shale, gy, ls nods		ak, cm, em		0.00
0.60	296.50	297.10	Limestone, shaley, nodular		ak, cs, es	y	0.60
3.05	297.10	300.15	Shale, gy		cm, em		0.00
2.00	300.15	302.15	Shale, gy, sandy, ls nods		ak, cm, em		0.00
1.90	302.15	304.05	Sandstone, gy, massive		cs, es	y	1.90
7.35	304.05	311.40	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
0.90	311.40	312.30	Shale, dk gy		cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-23

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
5.70	312.30	318.00	Shale, gy, ls nods		ak, cm, em		0.00
4.50	318.00	322.50	Sandstone, gy, sh stks		cs, es	y	4.50
2.30	322.50	324.80	Shale, gy, ss stks		cm, em		0.00
1.80	324.80	326.60	Shale, dk gy		cm, em		0.00
1.05	326.60	327.65	Limestone, shaley, layered		ak, cs, es	y	1.05
0.25	327.65	327.90	Shale, blk		ac, cm, em		0.00
0.55	327.90	328.45	Claystone, gy, ls nods		ak, cv, ev		0.00
1.15	328.45	329.60	Shale, dk gy, ss stks		cm, em		0.00
0.15	329.60	329.75	Shale, dk gy		cm, em		0.00
1.05	329.75	330.80	Shale, blk		ac, cm, em		0.00
0.08	330.80	330.88	Shale, blk, coal stks		ac, cm, em		0.00
0.22	330.88	331.10	Coal, sh stks, WAYNESBURG No. 11		ac, cv, ev		0.00
0.94	331.10	332.04	Coal		ac, cv, ev		0.00
0.32	332.04	332.36	Coal, bone stks		ac, cv, ev		0.00
0.28	332.36	332.64	Shale, dk gy		cm, em		0.00
5.06	332.64	337.70	Shale, gy, sandy, ls nods		ak, cm, em		0.00
7.55	337.70	345.25	Sandstone, gy, sh stks, coal stks		cs, es	y	7.55
6.05	345.25	351.30	Shale, dk gy, interbedded ss		cm, em		0.00
3.40	351.30	354.70	Shale, dk gy		cm, em		0.00
0.12	354.70	354.82	Shale, blk		ac, cm, em		0.00
0.06	354.82	354.88	Coal, pyrite, LITTLE WAYNESBURG		ac, cv, ev		0.00
1.42	354.88	356.30	Shale, gy		cm, em		0.00
0.50	356.30	356.80	Shale, gy, ls nods		ak, cm, em		0.00
2.60	356.80	359.40	Limestone, nodular		ak, cs, es	y	2.60
3.75	359.40	363.15	Shale, dk gy, ls nods		ak, cm, em		0.00
0.90	363.15	364.05	Limestone, shaley, nodular		ak, cs, es	y	0.90
2.05	364.05	366.10	Shale, dk gy, ls nods		ak, cm, em		0.00
1.55	366.10	367.65	Limestone, nodular		ak, cs, es	y	1.55
0.95	367.65	368.60	Shale, dk gy, ls nods		ak, cm, em		0.00
0.70	368.60	369.30	Limestone, nodular		ak, cs, es	y	0.70
1.10	369.30	370.40	Limestone, shaley, mosaic		ak, cs, es	y	1.10
2.20	370.40	372.60	Shale, dk gy, ls nods		ak, cm, em		0.00
1.70	372.60	374.30	Limestone, nodular		ak, cs, es	y	1.70
3.80	374.30	378.10	Claystone, gy, ls nods		ak, cv, ev		0.00
2.55	378.10	380.65	Limestone, shaley, nodular		ak, cs, es	y	2.55
0.50	380.65	381.15	Limestone, nodular		ak, cs, es	y	0.50
2.05	381.15	383.20	Claystone, dk gy, ls nods		ak, cv, ev		0.00
6.20	383.20	389.40	Shale, gm		cm, em		0.00
1.45	389.40	390.85	Sandstone, gy, sh stks		cs, es	y	1.45
1.15	390.85	392.00	Shale, gy, ss stks		cm, em		0.00
0.55	392.00	392.55	Sandstone, gy, sh stks		cs, es	y	0.55
1.75	392.55	394.30	Shale, dk gy		cm, em		0.00
1.45	394.30	395.75	Shale, red		cm, em		0.00
0.65	395.75	396.40	Shale, dk gy		cm, em		0.00
0.40	396.40	396.80	Limestone, nodular		ak, cs, es	y	0.40
0.85	396.80	397.65	Shale, dk gy, ls nods		ak, cm, em		0.00
1.25	397.65	398.90	Limestone, nodular		ak, cs, es	y	1.25
1.70	398.90	400.60	Shale, dk gy, ls nods		ak, cm, em		0.00
1.25	400.60	401.85	Limestone, shaley, nodular		ak, cs, es	y	1.25
1.90	401.85	403.75	Shale, dk gy, ls nods		ak, cm, em		0.00
1.25	403.75	405.00	Limestone, nodular		ak, cs, es	y	1.25
4.55	405.00	409.55	Claystone, gm, ls nods		ak, cv, ev		0.00
1.30	409.55	410.85	Shale, dk gy, ls nods		ak, cm, em		0.00
9.35	410.85	420.20	Limestone, shaley, nodular		ak, cs, es	y	9.35
2.40	420.20	422.60	Limestone, massive		ak, cs, es	y	2.40
2.50	422.60	425.10	Shale, dk gy, ls nods		ak, cm, em		0.00
0.55	425.10	425.65	Limestone, nodular		ak, cs, es	y	0.55
3.25	425.65	428.90	Shale, gy, ls nods		ak, cm, em		0.00
1.85	428.90	430.75	Shale, gm, ls nods		ak, cm, em		0.00
1.15	430.75	431.90	Claystone, dk gy, ls nods		ak, cv, ev		0.00
4.65	431.90	436.55	Core loss				0.00
0.45	436.55	437.00	Claystone, dk gy, ls nods		ak, cv, ev		0.00
4.20	437.00	441.20	Shale, gy, ls nods		ak, cm, em		0.00
1.55	441.20	442.75	Shale, gm, ls nods		ak, cm, em		0.00
2.75	442.75	445.50	Limestone, shaley, nodular		ak, cs, es	y	2.75
3.00	445.50	448.50	Shale, gy, ls nods		ak, cm, em		0.00
2.80	448.50	451.30	Limestone, shaley, nodular		ak, cs, es	y	2.80
2.00	451.30	453.30	Shale, dk gy, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-23

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
2.40	453.30	455.70	Limestone, shaley, nodular		ak, cs, es	y	2.40
3.25	455.70	458.95	Limestone, nodular		ak, cs, es	y	3.25
3.95	458.95	462.90	Limestone, shaley, nodular		ak, cs, es	y	3.95
1.55	462.90	464.45	Shale, grn, ls nods		ak, cm, em		0.00
6.95	464.45	471.40	Limestone, massive		ak, cs, es	y	6.95
3.05	471.40	474.45	Limestone, shaley, layered		ak, cs, es	y	3.05
1.05	474.45	475.50	Shale, grn, ls nods		ak, cm, em		0.00
1.40	475.50	476.90	Limestone, nodular		ak, cs, es	y	1.40
1.10	476.90	478.00	Shale, grn, ls nods		ak, cm, em		0.00
3.00	478.00	481.00	Limestone, shaley, nodular		ak, cs, es	y	3.00
4.35	481.00	485.35	Shale, dk gy, ls nods		ak, cm, em		0.00
3.15	485.35	488.50	Limestone, layered		ak, cs, es	y	3.15
1.20	488.50	489.70	Limestone, shaley, massive		ak, cs, es	y	1.20
4.45	489.70	494.15	Limestone, shaley, layered		ak, cs, es	y	4.45
2.15	494.15	496.30	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.95	496.30	497.25	Claystone, dk gy		cv, ev		0.00
0.29	497.25	497.54	Shale, blk		ac, cm, em		0.00
0.28	497.54	497.82	Coal, sh stks, SEWICKLEY No. 9		ac, cv, ev		0.00
0.27	497.82	498.09	Coal, bone stks		ac, cv, ev		0.00
0.52	498.09	498.61	Bone, coal layers		ac, cv, ev		0.00
2.49	498.61	501.10	Claystone, dk gy		cv, ev		0.00
1.90	501.10	503.00	Claystone, dk gy, ls nods		ak, cv, ev		0.00
11.00	503.00	514.00	Limestone, shaley, nodular		ak, cs, es	y	11.00
2.40	514.00	516.40	Shale, dk gy, ls nods		ak, cm, em		0.00
5.35	516.40	521.75	Shale, dk gy, ss stks, ls nods		ak, cm, em		0.00
1.33	521.75	523.08	Shale, dk gy, ls nods		ak, cm, em		0.00
1.12	523.08	524.20	Shale, blk, coal stks		ac, cm, em		0.00
0.51	524.20	524.71	Shale, blk, ss stks		ac, cm, em		0.00
1.57	524.71	526.28	Shale, dk gy		cm, em		0.00
0.94	526.28	527.22	Coal, sh stks, FISHPOT		ac, cv, ev		0.00
0.26	527.22	527.48	Shale, dk gy		cm, em		0.00
0.09	527.48	527.57	Bone, coal layers		ac, cv, ev		0.00
0.26	527.57	527.83	Coal, bone stks		ac, cv, ev		0.00
0.04	527.83	527.87	Shale, dk gy		cm, em		0.00
0.28	527.87	528.15	Coal, bone stks		ac, cv, ev		0.00
0.11	528.15	528.26	Shale, blk		ac, cm, em		0.00
0.69	528.26	528.95	Shale, dk gy		cm, em		0.00
4.15	528.95	533.10	Limestone, shaley, nodular		ak, cs, es	y	4.15
1.05	533.10	534.15	Limestone, nodular		ak, cs, es	y	1.05
1.75	534.15	535.90	Limestone, shaley, nodular		ak, cs, es	y	1.75
1.05	535.90	536.95	Limestone, nodular		ak, cs, es	y	1.05
0.35	536.95	537.30	Shale, dk gy, ls nods		ak, cm, em		0.00
7.20	537.30	544.50	Limestone, nodular		ak, cs, es	y	7.20
4.80	544.50	549.30	Shale, grn, ls nods		ak, cm, em		0.00
6.30	549.30	555.60	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.25	555.60	556.85	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.00	556.85	557.85	Shale, dk gy, ls nods		ak, cm, em		0.00
3.45	557.85	561.30	Limestone, nodular		ak, cs, es	y	3.45
2.25	561.30	563.55	Shale, grn, ls nods		ak, cm, em		0.00
0.68	563.55	564.23	Shale, dk gy, ls nods		ak, cm, em		0.00
0.11	564.23	564.34	Shale, blk, coal stks		ac, cm, em		0.00
0.10	564.34	564.44	Coal, sh stks, REDSTONE		ac, cv, ev		0.00
0.20	564.44	564.64	Claystone, blk		ac, cv, ev		0.00
0.86	564.64	565.50	Shale, dk gy, ls nods		ak, cm, em		0.00
0.40	565.50	565.90	Sandstone, gy, sh stks		cs, es	y	0.40
0.70	565.90	566.60	Shale, dk gy, ss stks		cm, em		0.00
2.40	566.60	569.00	Shale, dk gy, ls nods		ak, cm, em		0.00
1.55	569.00	570.55	Limestone, shaley, nodular		ak, cs, es	y	1.55
0.83	570.55	571.38	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.75	571.38	572.13	Limestone, massive		ak, cs, es	y	0.75
0.25	572.13	572.38	Shale, gy, ls nods		ak, cm, em		0.00
0.35	572.38	572.73	Limestone, massive		ak, cs, es	y	0.35
1.25	572.73	573.98	Shale, gy, ls nods		ak, cm, em		0.00
7.60	573.98	581.58	Limestone, nodular		ak, cs, es	y	7.60
5.10	581.58	586.68	Claystone, gy, ls nods		ak, cv, ev		0.00
0.75	586.68	587.43	Claystone, gy		cv, ev		0.00
1.98	587.43	589.41	Claystone, blk tan, layered		ac, cv, ev		0.00
0.52	589.41	589.93	Coal, pyrite, PITTSBURGH No. 8 ROOF COAL		ac, cv, ev		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-23

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.02	589.93	589.95	Claystone, dk gy		cv, ev		0.00
0.15	589.95	590.10	Coal, bone stks		ac, cv, ev		0.00
0.15	590.10	590.25	Shale, blk, coal stks		ac, cm, em		0.00
0.86	590.25	591.11	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.27	591.11	591.38	Coal, pyrite, PITTSBURGH No. 8		ac, cv, ev		0.00
1.66	591.38	593.04	Coal		ac, cv, ev		0.00
1.98	593.04	595.02	Coal, broken		ac, cv, ev		0.00
1.02	595.02	596.04	Coal		ac, cv, ev		0.00
0.24	596.04	596.28	Shale, blk		ac, cm, em		0.00
0.07	596.28	596.35	Coal, pyrite		ac, cv, ev		0.00
0.95	596.35	597.30	Shale, dk gy		cm, em		0.00
0.40	597.30	597.70	Shale, dk gy, ls nods		ak, cm, em		0.00
0.20	597.70	597.90	Limestone, shaley, nodular		ak, cs, es	y	0.20
0.85	597.90	598.75	Claystone, gy, ls nods		ak, cv, ev		0.00
0.75	598.75	599.50	Limestone, shaley, nodular		ak, cs, es	y	0.75
2.00	599.50	601.50	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.65	601.50	604.15	Shale, dk gy, ls nods		ak, cm, em		0.00
2.10	604.15	606.25	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
Total Depth		403.75					101.90

Acid Producing: ac

Alkaline Producing: ak

Compactible: c (v-very, m-moderate, s-slight)

Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit

101.90

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit

25%

	Thickness (Ft.)	Percent (%)
Hard Rock:	101.90	25%
Soft Rock:	301.85	75%
	403.75	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	184.96	1.57	1.20	49.16	-136.05
Coal					
Bottom, 10 ft.	40.37	2.11	1.90	65.90	25.55

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-27

Field Engineer: Kim Cecil
 Surface Elevation: 1315
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 690320
 Easting: 2430440
 Drilling Company: Kerogen Resources

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
19.00	0.00	19.00	Casing				0.00
1.20	19.00	20.20	Limestone, nodular		ak, cs, es	y	1.20
1.95	20.20	22.15	Claystone, dk gy, ls nods	Y	ak, cv, ev		0.00
0.65	22.15	22.80	Limestone, shaley, nodular		ak, cs, es	y	0.65
5.75	22.80	28.55	Claystone, gy	Y	cv, ev		0.00
1.10	28.55	29.65	Limestone, shaley, nodular		ak, cs, es	y	1.10
0.40	29.65	30.05	Claystone, gy		cv, ev		0.00
2.30	30.05	32.35	Claystone, dk gy	Y	cv, ev		0.00
2.30	32.35	34.65	Shale, gy, sandy, ls nods		ak, cm, em		0.00
1.10	34.65	35.75	Sandstone, gy, sh stks		cs, es	y	1.10
0.50	35.75	36.25	Claystone, gy, sandy		cv, ev		0.00
0.75	36.25	37.00	Shale, gy, interbedded ss		cm, em		0.00
2.65	37.00	39.65	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.70	39.65	42.35	Shale, gy		cm, em		0.00
1.05	42.35	43.40	Shale, red/ gy		cm, em		0.00
0.35	43.40	43.75	Shale, gy, sandy		cm, em		0.00
5.00	43.75	48.75	Shale, gy, sandy, ls nods		ak, cm, em		0.00
0.80	48.75	49.55	Sandstone, gy, sh stks		cs, es	y	0.80
7.80	49.55	57.35	Shale, dk gy, ss stks		cm, em		0.00
3.45	57.35	60.80	Shale, dk gy		cm, em		0.00
0.40	60.80	61.20	Shale, blk/ tan		ac, cm, em		0.00
0.25	61.20	61.45	Shale, dk gy		cm, em		0.00
0.30	61.45	61.75	Shale, blk		ac, cm, em		0.00
0.35	61.75	62.10	Shale, dk gy		cm, em		0.00
0.25	62.10	62.35	Limestone, shaley, nodular		ak, cs, es	y	0.25
2.10	62.35	64.45	Claystone, gy, ls nods		ak, cv, ev		0.00
0.80	64.45	65.25	Limestone, nodular		ak, cs, es	y	0.80
2.30	65.25	67.55	Claystone, gy, ls nods		ak, cv, ev		0.00
10.00	67.55	77.55	Shale, gy, sandy, ls nods		ak, cm, em		0.00
3.70	77.55	81.25	Shale, dk gy		cm, em		0.00
1.60	81.25	82.85	Shale, gy		cm, em		0.00
1.75	82.85	84.60	Claystone, dk gy		cv, ev		0.00
7.55	84.60	92.15	Shale, dk gy, ls nods		ak, cm, em		0.00
11.70	92.15	103.85	Shale, gy, ls nods		ak, cm, em		0.00
3.45	103.85	107.30	Shale, dk gy, ls nods		ak, cm, em		0.00
1.55	107.30	108.85	Shale, gy, ss stks		cm, em		0.00
1.95	108.85	110.80	Sandstone, gy, sh stks		cs, es	y	1.95
6.85	110.80	117.65	Shale, gy, ss stks		cm, em		0.00
1.30	117.65	118.95	Shale, gy		cm, em		0.00
3.60	118.95	122.55	Claystone, red/ gy		cv, ev		0.00
1.00	122.55	123.55	Claystone, red		cv, ev		0.00
0.90	123.55	124.45	Claystone, red/ gy		cv, ev		0.00
4.30	124.45	128.75	Shale, gy, ss stks		cm, em		0.00
0.90	128.75	129.65	Claystone, red/ gy		cv, ev		0.00
1.30	129.65	130.95	Shale, gy		cm, em		0.00
0.50	130.95	131.45	Claystone, red/ gy		cv, ev		0.00
5.50	131.45	136.95	Shale, dk gy, sandy		cm, em		0.00
0.95	136.95	137.90	Shale, red		cm, em		0.00
14.55	137.90	152.45	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.80	152.45	154.25	Sandstone, gy, sh stks		cs, es	y	1.80
1.40	154.25	155.65	Shale, dk gy		cm, em		0.00
0.11	155.65	155.76	Shale, blk		ac, cm, em		0.00
0.13	155.76	155.89	Coal, sh stks		ac, cv, ev		0.00
3.66	155.89	159.55	Claystone, dk gy		cv, ev		0.00
1.50	159.55	161.05	Limestone, shaley, nodular		ak, cs, es	y	1.50
2.10	161.05	163.15	Claystone, dk gy, ls nods		ak, cv, ev		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-27

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.90	163.15	165.05	Shale, gy, ls nods		ak, cm, em		0.00
3.40	165.05	168.45	Shale, red/ gy		cm, em		0.00
0.50	168.45	168.95	Limestone, shaley, nodular		ak, cs, es	y	0.50
18.70	168.95	187.65	Shale, gy, ls nods		ak, cm, em		0.00
5.65	187.65	193.30	Shale, red/ gy		cm, em		0.00
3.85	193.30	197.15	Claystone, gy, ls nods		ak, cv, ev		0.00
1.70	197.15	198.85	Claystone, gy		cv, ev		0.00
3.10	198.85	201.95	Shale, gy, ss stks		cm, em		0.00
2.35	201.95	204.30	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.50	204.30	206.80	Claystone, gy, ls nods		ak, cv, ev		0.00
0.95	206.80	207.75	Shale, red/ gy		cm, em		0.00
2.25	207.75	210.00	Shale, gy, ls nods		ak, cm, em		0.00
7.45	210.00	217.45	Shale, red/ gy		cm, em		0.00
2.90	217.45	220.35	Shale, dk gy		cm, em		0.00
3.10	220.35	223.45	Shale, red/ gy		cm, em		0.00
0.55	223.45	224.00	Shale, dk gy		cm, em		0.00
0.65	224.00	224.65	Limestone, shaley, nodular		ak, cs, es	y	0.65
2.10	224.65	226.75	Shale, gy, ls nods		ak, cm, em		0.00
1.70	226.75	228.45	Limestone, nodular		ak, cs, es	y	1.70
1.20	228.45	229.65	Limestone, shaley, nodular		ak, cs, es	y	1.20
21.90	229.65	251.55	Claystone, gy, ls nods		ak, cv, ev		0.00
7.00	251.55	258.55	Shale, dk gy, ls nods		ak, cm, em		0.00
2.15	258.55	260.70	Shale, dk gy		cm, em		0.00
0.30	260.70	261.00	Limestone, shaley, nodular		ak, cs, es	y	0.30
2.05	261.00	263.05	Shale, dk gy, ss stks, ls nods		ak, cm, em		0.00
1.00	263.05	264.05	Limestone, shaley, nodular		ak, cs, es	y	1.00
0.65	264.05	264.70	Shale, dk gy, ls layers		ak, cm, em		0.00
1.05	264.70	265.75	Limestone, nodular		ak, cs, es	y	1.05
1.50	265.75	267.25	Shale, dk gy, ls nods		ak, cm, em		0.00
6.20	267.25	273.45	Shale, gy, ls nods		ak, cm, em		0.00
2.20	273.45	275.65	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.47	275.65	278.12	Shale, dk gy		cm, em		0.00
0.41	278.12	278.53	Shale, blk		ac, cm, em		0.00
0.15	278.53	278.68	Shale, blk, coal stks		ac, cm, em		0.00
0.11	278.68	278.79	Coal, sh stks, WASHINGTON No. 12		ac, cv, ev		0.00
2.23	278.79	281.02	Coal, bone stks		ac, cv, ev		0.00
0.41	281.02	281.43	Shale, blk		ac, cm, em		0.00
0.06	281.43	281.49	Coal, bone stks		ac, cv, ev		0.00
0.64	281.49	282.13	Shale, dk gy		cm, em		0.00
0.41	282.13	282.54	Coal, bone stks		ac, cv, ev		0.00
0.48	282.54	283.02	Coal, sh stks		ac, cv, ev		0.00
1.25	283.02	284.27	Shale, dk gy		cm, em		0.00
7.00	284.27	291.27	Shale, gy, ls nods		ak, cm, em		0.00
4.95	291.27	296.22	Shale, gy, sandy, ls nods		ak, cm, em		0.00
4.75	296.22	300.97	Claystone, gy, ls nods		ak, cv, ev		0.00
4.10	300.97	305.07	Shale, gy, interbedded ss, ls nods		ak, cm, em		0.00
0.90	305.07	305.97	Sandstone, gy, sh stks		cs, es	y	0.90
0.70	305.97	306.67	Shale, gy, ss stks		cm, em		0.00
10.40	306.67	317.07	Shale, gy, ls nods		ak, cm, em		0.00
3.70	317.07	320.77	Sandstone, gy, massive		cs, es	y	3.70
12.30	320.77	333.07	Sandstone, gy, sh stks		cs, es	y	12.30
4.95	333.07	338.02	Sandstone, gy, massive		cs, es	y	4.95
4.75	338.02	342.77	Sandstone, gy, sh stks		cs, es	y	4.75
1.55	342.77	344.32	Shale, dk gy, interbedded ss		cm, em		0.00
1.55	344.32	345.87	Sandstone, gy, sh stks		cs, es	y	1.55
0.43	345.87	346.30	Shale, blk, coal stks		ac, cm, em		0.00
0.62	346.30	346.92	Shale, dk gy, ls nods		ak, cm, em		0.00
1.04	346.92	347.96	Shale, blk		ac, cm, em		0.00
1.51	347.96	349.47	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.10	349.47	350.57	Limestone, nodular		ak, cs, es	y	1.10
0.90	350.57	351.47	Limestone, shaley, nodular		ak, cs, es	y	0.90
2.70	351.47	354.17	Shale, gy, ls nods		ak, cm, em		0.00
1.60	354.17	355.77	Limestone, shaley, nodular		ak, cs, es	y	1.60
3.80	355.77	359.57	Claystone, gy, ls nods		ak, cv, ev		0.00
10.00	359.57	369.57	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.20	369.57	370.77	Shale, gy		cm, em		0.00
1.00	370.77	371.77	Shale, dk gy		cm, em		0.00
3.20	371.77	374.97	Shale, gy, ss stks, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-27

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
4.00	374.97	378.97	Shale, dk gy		cm, em		0.00
0.90	378.97	379.87	Limestone, shaley, nodular		ak, cs, es	y	0.90
6.67	379.87	386.54	Shale, blk		ac, cm, em		0.00
0.29	386.54	386.83	Shale, blk, coal stks		ac, cm, em		0.00
0.66	386.83	387.49	Coal, sh stks, WAYNESBURG No. 11		ac, cv, ev		0.00
0.52	387.49	388.01	Coal, bone stks		ac, cv, ev		0.00
0.76	388.01	388.77	Shale, gy		cm, em		0.00
6.30	388.77	395.07	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
11.47	395.07	406.54	Shale, dk gy		cm, em		0.00
0.23	406.54	406.77	Shale, blk, coal stks		ac, cm, em		0.00
0.75	406.77	407.52	Claystone, dk gy		cv, ev		0.00
0.95	407.52	408.47	Shale, dk gy, ls nods		ak, cm, em		0.00
3.50	408.47	411.97	Limestone, nodular		ak, cs, es	y	3.50
3.50	411.97	415.47	Shale, dk gy, ls nods		ak, cm, em		0.00
0.70	415.47	416.17	Limestone, shaley, nodular		ak, cs, es	y	0.70
1.80	416.17	417.97	Shale, dk gy, ls nods		ak, cm, em		0.00
1.60	417.97	419.57	Limestone, nodular		ak, cs, es	y	1.60
0.90	419.57	420.47	Shale, dk gy, ls nods		ak, cm, em		0.00
1.80	420.47	422.27	Limestone, shaley, nodular		ak, cs, es	y	1.80
7.60	422.27	429.87	Shale, gy, ls nods		ak, cm, em		0.00
3.20	429.87	433.07	Limestone, nodular		ak, cs, es	y	3.20
7.80	433.07	440.87	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.20	440.87	443.07	Shale, grn, ls nods		ak, cm, em		0.00
1.60	443.07	444.67	Sandstone, gy, massive		cs, es	y	1.60
0.70	444.67	445.37	Shale, gy		cm, em		0.00
1.70	445.37	447.07	Shale, red		cm, em		0.00
1.80	447.07	448.87	Shale, dk gy, ls nods		ak, cm, em		0.00
1.00	448.87	449.87	Limestone, nodular		ak, cs, es	y	1.00
3.60	449.87	453.47	Shale, gy, ls nods		ak, cm, em		0.00
1.20	453.47	454.67	Limestone, nodular		ak, cs, es	y	1.20
2.30	454.67	456.97	Shale, dk gy, ss stks		cm, em		0.00
4.10	456.97	461.07	Shale, grn, sandy		cm, em		0.00
2.10	461.07	463.17	Limestone, nodular		ak, cs, es	y	2.10
1.00	463.17	464.17	Limestone, shaley, nodular		ak, cs, es	y	1.00
0.90	464.17	465.07	Limestone, nodular		ak, cs, es	y	0.90
3.05	465.07	468.12	Shale, dk gy, ls nods		ak, cm, em		0.00
1.55	468.12	469.67	Limestone, shaley, nodular		ak, cs, es	y	1.55
1.10	469.67	470.77	Limestone, massive		ak, cs, es	y	1.10
1.20	470.77	471.97	Limestone, shaley, nodular		ak, cs, es	y	1.20
1.00	471.97	472.97	Limestone, massive		ak, cs, es	y	1.00
4.75	472.97	477.72	Shale, dk gy, ls nods		ak, cm, em		0.00
1.15	477.72	478.87	Limestone, shaley, nodular		ak, cs, es	y	1.15
5.10	478.87	483.97	Shale, grn, ls nods		ak, cm, em		0.00
1.00	483.97	484.97	Limestone, shaley, nodular		ak, cs, es	y	1.00
1.70	484.97	486.67	Shale, dk gy, ls nods		ak, cm, em		0.00
1.50	486.67	488.17	Limestone, nodular		ak, cs, es	y	1.50
1.40	488.17	489.57	Shale, dk gy, ls nods		ak, cm, em		0.00
0.65	489.57	490.22	Limestone, nodular		ak, cs, es	y	0.65
0.55	490.22	490.77	Shale, dk gy, ls nods		ak, cm, em		0.00
0.55	490.77	491.32	Limestone, shaley, nodular		ak, cs, es	y	0.55
10.15	491.32	501.47	Shale, gy, ls nods		ak, cm, em		0.00
1.10	501.47	502.57	Limestone, nodular		ak, cs, es	y	1.10
0.80	502.57	503.37	Limestone, shaley, nodular		ak, cs, es	y	0.80
7.20	503.37	510.57	Shale, dk gy, ls nods		ak, cm, em		0.00
2.30	510.57	512.87	Limestone, shaley, nodular		ak, cs, es	y	2.30
2.70	512.87	515.57	Limestone, nodular		ak, cs, es	y	2.70
3.40	515.57	518.97	Shale, grn, ls nods		ak, cm, em		0.00
1.15	518.97	520.12	Shale, dk gy, ls nods		ak, cm, em		0.00
6.00	520.12	526.12	Limestone, massive		ak, cs, es	y	6.00
0.90	526.12	527.02	Shale, dk gy, ls nods		ak, cm, em		0.00
1.30	527.02	528.32	Limestone, layered		ak, cs, es	y	1.30
2.05	528.32	530.37	Shale, dk gy, ls nods		ak, cm, em		0.00
2.05	530.37	532.42	Limestone, shaley, nodular		ak, cs, es	y	2.05
1.35	532.42	533.77	Claystone, grn		cv, ev		0.00
4.15	533.77	537.92	Limestone, shaley, layered		ak, cs, es	y	4.15
0.60	537.92	538.52	Shale, dk gy, ls nods		ak, cm, em		0.00
3.20	538.52	541.72	Limestone, nodular		ak, cs, es	y	3.20
0.55	541.72	542.27	Shale, gy, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-27

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.65	542.27	543.92	Limestone, massive		ak, cs, es	y	1.65
1.40	543.92	545.32	Limestone, shaley, layered		ak, cs, es	y	1.40
2.80	545.32	548.12	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.45	548.12	548.57	Limestone, nodular		ak, cs, es	y	0.45
1.68	548.57	550.25	Claystone, dk gy		cv, ev		0.00
0.58	550.25	550.83	Shale, blk, coal stks		ac, cm, em		0.00
0.19	550.83	551.02	Shale, dk gy		cm, em		0.00
0.78	551.02	551.80	Coal, bone stks, SEWICKLEY No. 9		ac, cv, ev		0.00
0.09	551.80	551.89	Limestone, shaley		ak, cs, es	y	0.09
0.48	551.89	552.37	Coal, pyrite		ac, cv, ev		0.00
1.15	552.37	553.52	Claystone, dk gy		cv, ev		0.00
2.10	553.52	555.62	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.25	555.62	556.87	Shale, gy, sandy, ls nods		ak, cm, em		0.00
5.75	556.87	562.62	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.50	562.62	564.12	Shale, gy, ls nods		ak, cm, em		0.00
1.50	564.12	565.62	Shale, gy, ss stks		cm, em		0.00
3.35	565.62	568.97	Shale, dk gy, ls nods		ak, cm, em		0.00
1.45	568.97	570.42	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
3.60	570.42	574.02	Shale, gy, ss stks		cm, em		0.00
1.55	574.02	575.57	Shale, dk gy		cm, em		0.00
2.45	575.57	578.02	Shale, dk gy, ss stks		cm, em		0.00
1.75	578.02	579.77	Shale, blk		ac, cm, em		0.00
0.91	579.77	580.68	Sandstone, gy, coal spars		cs, es	y	0.91
1.03	580.68	581.71	Shale, dk gy		cm, em		0.00
0.83	581.71	582.54	Coal, sh stks, FISHPOT		ac, cv, ev		0.00
0.33	582.54	582.87	Claystone, dk gy		cv, ev		0.00
0.39	582.87	583.26	Coal, sh stks		ac, cv, ev		0.00
0.12	583.26	583.38	Shale, blk, coal stks		ac, cm, em		0.00
0.24	583.38	583.62	Shale, dk gy		cm, em		0.00
0.75	583.62	584.37	Shale, dk gy, ls nods		ak, cm, em		0.00
1.35	584.37	585.72	Limestone, nodular		ak, cs, es	y	1.35
1.00	585.72	586.72	Shale, dk gy, ls nods		ak, cm, em		0.00
3.10	586.72	589.82	Limestone, shaley, nodular		ak, cs, es	y	3.10
4.00	589.82	593.82	Limestone, nodular		ak, cs, es	y	4.00
3.20	593.82	597.02	Limestone, shaley, nodular		ak, cs, es	y	3.20
2.65	597.02	599.67	Limestone, massive		ak, cs, es	y	2.65
1.55	599.67	601.22	Limestone, shaley, nodular		ak, cs, es	y	1.55
0.80	601.22	602.02	Claystone, grn, ls nods		ak, cv, ev		0.00
1.40	602.02	603.42	Limestone, shaley, nodular		ak, cs, es	y	1.40
1.35	603.42	604.77	Shale, gy, sandy, ls nods		ak, cm, em		0.00
2.85	604.77	607.62	Shale, gy, ls nods		ak, cm, em		0.00
1.90	607.62	609.52	Shale, dk gy, ls nods		ak, cm, em		0.00
2.85	609.52	612.37	Shale, dk gy		cm, em		0.00
1.60	612.37	613.97	Shale, dk gy, ls nods		ak, cm, em		0.00
1.55	613.97	615.52	Limestone, massive		ak, cs, es	y	1.55
1.25	615.52	616.77	Shale, dk gy, ls nods		ak, cm, em		0.00
1.05	616.77	617.82	Limestone, massive		ak, cs, es	y	1.05
0.95	617.82	618.77	Shale, dk gy, ls nods		ak, cm, em		0.00
2.15	618.77	620.92	Claystone, grn, ls nods		ak, cv, ev		0.00
0.65	620.92	621.57	Claystone, gy, ls nods		ak, cv, ev		0.00
0.28	621.57	621.85	Shale, blk, coal stks		ac, cm, em		0.00
0.22	621.85	622.07	Claystone, dk gy		cv, ev		0.00
0.75	622.07	622.82	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	622.82	623.42	Shale, dk gy		cm, em		0.00
0.50	623.42	623.92	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.95	623.92	624.87	Limestone, massive		ak, cs, es	y	0.95
0.45	624.87	625.32	Shale, dk gy, ls nods		ak, cm, em		0.00
2.23	625.32	627.55	Limestone, shaley, nodular		ak, cs, es	y	2.23
6.35	627.55	633.90	Limestone, nodular		ak, cs, es	y	6.35
0.05	633.90	633.95	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.35	633.95	635.30	Limestone, nodular		ak, cs, es	y	1.35
0.30	635.30	635.60	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.45	635.60	638.05	Limestone, nodular		ak, cs, es	y	2.45
5.85	638.05	643.90	Claystone, gy, ls nods		ak, cv, ev		0.00
0.70	643.90	644.60	Claystone, blk/ tan		ac, cv, ev		0.00
0.25	644.60	644.85	Shale, blk		ac, cm, em		0.00
0.25	644.85	645.10	Claystone, gy		cv, ev		0.00
0.20	645.10	645.30	Shale, blk		ac, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-27

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.44	645.30	645.74	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.09	645.74	645.83	Shale, blk, coal stks		ac, cm, em		0.00
0.52	645.83	646.35	Coal, pyrite, PITTSBURGH No. 8 ROOF COAL		ac, cv, ev		0.00
0.02	646.35	646.37	Claystone, dk gy		cv, ev		0.00
0.15	646.37	646.52	Coal, bone stks		ac, cv, ev		0.00
0.15	646.52	646.67	Shale, blk, coal stks		ac, cm, em		0.00
0.31	646.67	646.98	Shale, dk gy		cm, em		0.00
0.48	646.98	647.46	Claystone, gy		cv, ev		0.00
0.08	647.46	647.54	Shale, blk, coal stks		ac, cm, em		0.00
0.58	647.54	648.12	Coal, bone stks, PITTSBURGH No. 8		ac, cv, ev		0.00
1.49	648.12	649.61	Coal		ac, cv, ev		0.00
0.02	649.61	649.63	Shale, blk, coal stks		ac, cm, em		0.00
0.56	649.63	650.19	Coal		ac, cv, ev		0.00
0.03	650.19	650.22	Shale, blk, coal stks		ac, cm, em		0.00
0.98	650.22	651.20	Coal		ac, cv, ev		0.00
0.02	651.20	651.22	Claystone, dk gy		cv, ev		0.00
1.73	651.22	652.95	Coal		ac, cv, ev		0.00
1.35	652.95	654.30	Shale, dk gy		cm, em		0.00
2.20	654.30	656.50	Shale, dk gy, ls nods		ak, cm, em		0.00
0.30	656.50	656.80	Limestone, shaley, nodular		ak, cs, es	y	0.30
1.50	656.80	658.30	Claystone, dk gy		cv, ev		0.00
4.10	658.30	662.40	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.30	662.40	662.70	Sandstone, gy, sh stks		cs, es	y	0.30
0.20	662.70	662.90	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.70	662.90	665.60	Sandstone, gy, calc. cemented		ak, cs, es	y	2.70
Total Depth			665.60				143.08

Acid Producing: ac
 Alkaline Producing: ak
 Compactible: c (v-very, m-moderate, s-slight)
 Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit 143.08

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit 21%

	Thickness (Ft.)	Percent (%)
Hard Rock:	143.08	21%
Soft Rock:	522.52	79%
	665.60	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	220.62	1.27	0.95	39.54	-181.28
Coal					
Bottom, 10 ft.	210.75	2.46	2.34	76.70	-133.85

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-30

Field Engineer: Kim Cecil
 Surface Elevation: 1260
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 691190
 Easting: 2436130
 Drilling Company: Kerogen Resources

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
16.00	0.00	16.00	Casing				0.00
12.40	16.00	28.40	Claystone, gy	Y	cv, ev		0.00
1.45	28.40	29.85	Shale, gy, ss stks	Y	cm, em		0.00
0.20	29.85	30.05	Limestone, shaley	Y	ak, cs, es	y	0.20
0.35	30.05	30.40	Claystone, gy	Y	cv, ev		0.00
0.25	30.40	30.65	Limestone, shaley, massive	Y	ak, cs, es	y	0.25
9.45	30.65	40.10	Shale, gy	Y	cm, em		0.00
0.85	40.10	40.95	Claystone, red	Y	cv, ev		0.00
1.80	40.95	42.75	Claystone, gy		cv, ev		0.00
0.75	42.75	43.50	Claystone, dk gy		cv, ev		0.00
2.35	43.50	45.85	Claystone, gy		cv, ev		0.00
1.20	45.85	47.05	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.15	47.05	48.20	Shale, dk gy		cm, em		0.00
0.20	48.20	48.40	Shale, dk gy, ls nods		ak, cm, em		0.00
1.35	48.40	49.75	Shale, dk gy		cm, em		0.00
0.50	49.75	50.25	Shale, gy, ls nods		ak, cm, em		0.00
2.70	50.25	52.95	Limestone, shaley, massive		ak, cs, es	y	2.70
3.05	52.95	56.00	Claystone, gy, ls nods		ak, cv, ev		0.00
4.50	56.00	60.50	Shale, gy, sandy, ls nods		ak, cm, em		0.00
3.65	60.50	64.15	Sandstone, gy, sh stks		cs, es	y	3.65
1.20	64.15	65.35	Sandstone, gy, crossbeds		cs, es	y	1.20
0.15	65.35	65.50	Shale, gy, sandy, ls nods		ak, cm, em		0.00
5.80	65.50	71.30	Shale, gy, sandy		cm, em		0.00
1.20	71.30	72.50	Shale, gy, ls nods		ak, cm, em		0.00
3.40	72.50	75.90	Claystone, gy, ls nods		ak, cv, ev		0.00
1.15	75.90	77.05	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.35	77.05	79.40	Sandstone, gy, sh stks		cs, es	y	2.35
6.55	79.40	85.95	Shale, gy		cm, em		0.00
0.40	85.95	86.35	Claystone, red		cv, ev		0.00
2.05	86.35	88.40	Claystone, dk gy		cv, ev		0.00
1.50	88.40	89.90	Claystone, red/ gy		cv, ev		0.00
0.55	89.90	90.45	Claystone, gy		cv, ev		0.00
4.55	90.45	95.00	Shale, gy, sandy		cm, em		0.00
1.15	95.00	96.15	Shale, gy, ss stks		cm, em		0.00
0.70	96.15	96.85	Shale, gy, interbedded ss		cm, em		0.00
7.00	96.85	103.85	Sandstone, gy, sh stks		cs, es	y	7.00
13.05	103.85	116.90	Sandstone, gy, crossbeds		cs, es	y	13.05
1.80	116.90	118.70	Shale, dk gy		cm, em		0.00
0.20	118.70	118.90	Claystone, red/ gy		cv, ev		0.00
0.50	118.90	119.40	Claystone, red		cv, ev		0.00
8.35	119.40	127.75	Claystone, dk gy, ls nods		ak, cv, ev		0.00
3.15	127.75	130.90	Claystone, red		cv, ev		0.00
5.10	130.90	136.00	Shale, gy, ls nods		ak, cm, em		0.00
1.90	136.00	137.90	Shale, gy		cm, em		0.00
0.25	137.90	138.15	Shale, red/ gy		cm, em		0.00
1.10	138.15	139.25	Claystone, gy		cv, ev		0.00
5.35	139.25	144.60	Claystone, red/ gy		cv, ev		0.00
5.50	144.60	150.10	Claystone, red		cv, ev		0.00
3.05	150.10	153.15	Claystone, gy, ls nods		ak, cv, ev		0.00
2.10	153.15	155.25	Shale, gy, sandy, ls nods		ak, cm, em		0.00
4.05	155.25	159.30	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
6.80	159.30	166.10	Shale, gy, ls nods		ak, cm, em		0.00
0.85	166.10	166.95	Claystone, red/ gy		cv, ev		0.00
1.25	166.95	168.20	Shale, gy, ls nods		ak, cm, em		0.00
1.50	168.20	169.70	Claystone, red		cv, ev		0.00
2.10	169.70	171.80	Claystone, gy, ls nods		ak, cv, ev		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-30

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
3.50	171.80	175.30	Claystone, red/ gy		cv, ev		0.00
4.30	175.30	179.60	Claystone, dk gy		cv, ev		0.00
2.30	179.60	181.90	Claystone, red/ gy		cv, ev		0.00
3.10	181.90	185.00	Shale, dk gy, ls nods		ak, cm, em		0.00
3.10	185.00	188.10	Limestone, shaley, nodular		ak, cs, es	y	3.10
1.05	188.10	189.15	Claystone, gy		cv, ev		0.00
1.30	189.15	190.45	Claystone, red/ gy		cv, ev		0.00
1.55	190.45	192.00	Claystone, gy		cv, ev		0.00
2.80	192.00	194.80	Claystone, red/ gy		cv, ev		0.00
10.25	194.80	205.05	Shale, gy, ls nods		ak, cm, em		0.00
0.20	205.05	205.25	Shale, gy, ss stks		cm, em		0.00
0.70	205.25	205.95	Shale, gy, ls nods		ak, cm, em		0.00
4.35	205.95	210.30	Shale, gy, ss stks		cm, em		0.00
2.85	210.30	213.15	Shale, gy, interbedded ss		cm, em		0.00
1.00	213.15	214.15	Shale, gy, ss stks		cm, em		0.00
2.15	214.15	216.30	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
5.75	216.30	222.05	Shale, dk gy		cm, em		0.00
0.30	222.05	222.35	Shale, dk gy, ls layers		cm, em		0.00
0.40	222.35	222.75	Limestone, shaley, nodular		ak, cs, es	y	0.40
0.50	222.75	223.25	Claystone, gy		cv, ev		0.00
1.35	223.25	224.60	Shale, gy, ss stks		cm, em		0.00
0.44	224.60	225.04	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.19	225.04	225.23	Bone, coal stks		ac, cv, ev		0.00
0.92	225.23	226.15	Limestone, shaley, nodular		ak, cs, es	y	0.92
1.10	226.15	227.25	Claystone, dk gy, ls nods		cm, em		0.00
0.50	227.25	227.75	Shale, dk gy		cm, em		0.00
7.30	227.75	235.05	Shale, gy, ls nods		ak, cm, em		0.00
1.25	235.05	236.30	Claystone, dk gy		cv, ev		0.00
0.10	236.30	236.40	Shale, blk		ac, cm, em		0.00
0.58	236.40	236.98	Coal, pyrite, WASHINGTON No. 12		ac, cv, ev		0.00
0.73	236.98	237.71	Coal, bone stks		ac, cv, ev		0.00
0.56	237.71	238.27	Coal		ac, cv, ev		0.00
0.75	238.27	239.02	Coal, bone stks		ac, cv, ev		0.00
0.20	239.02	239.22	Shale, blk, coal stks		ac, cm, em		0.00
0.97	239.22	240.19	Shale, blk		ac, cm, em		0.00
0.38	240.19	240.57	Coal, pyrite		ac, cv, ev		0.00
0.40	240.57	240.97	Coal, bone stks		ac, cv, ev		0.00
0.53	240.97	241.50	Claystone, dk gy		cv, ev		0.00
6.50	241.50	248.00	Shale, gy, ls nods		ak, cm, em		0.00
6.50	248.00	254.50	Shale, gy, sandy, ls nods		ak, cm, em		0.00
3.10	254.50	257.60	Sandstone, gy, calcite cemented		ak, cs, es	y	3.10
6.85	257.60	264.45	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.55	264.45	266.00	Shale, gy, ls nods		ak, cm, em		0.00
2.90	266.00	268.90	Shale, gy, sandy, ls nods		ak, cm, em		0.00
2.85	268.90	271.75	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
6.65	271.75	278.40	Shale, gy, sandy, ls nods		ak, cm, em		0.00
1.55	278.40	279.95	Shale, gy, ss stks		cm, em		0.00
4.40	279.95	284.35	Sandstone, gy, sh stks		cs, es	y	4.40
6.65	284.35	291.00	Shale, dk gy, ls nods		ak, cm, em		0.00
4.78	291.00	295.78	Shale, dk gy		cm, em		0.00
0.74	295.78	296.52	Shale, blk, coal stks		ac, cm, em		0.00
0.51	296.52	297.03	Coal, pyrite, LITTLE WASHINGTON		ac, cv, ev		0.00
1.23	297.03	298.26	Coal, bone stks		ac, cv, ev		0.00
0.41	298.26	298.67	Coal, bone layers		ac, cv, ev		0.00
0.96	298.67	299.63	Shale, dk gy, ls nods		ak, cm, em		0.00
0.30	299.63	299.93	Shale, blk		ac, cm, em		0.00
0.52	299.93	300.45	Shale, dk gy		cm, em		0.00
5.05	300.45	305.50	Shale, dk gy, ls nods		ak, cm, em		0.00
1.25	305.50	306.75	Claystone, grn, ls nods		ak, cv, ev		0.00
7.05	306.75	313.80	Shale, gy, ls nods		ak, cm, em		0.00
1.30	313.80	315.10	Shale, gy, ss stks		cm, em		0.00
4.45	315.10	319.55	Sandstone, gy, sh stks		cs, es	y	4.45
1.65	319.55	321.20	Shale, gy, ss stks		cm, em		0.00
2.80	321.20	324.00	Shale, gy		cm, em		0.00
2.95	324.00	326.95	Shale, dk gy		cm, em		0.00
1.25	326.95	328.20	Limestone, shaley, layered		ak, cs, es	y	1.25
7.30	328.20	335.50	Shale, dk gy, ls nods		ak, cm, em		0.00
7.65	335.50	343.15	Shale, dk gy		cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-30

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.55	343.15	343.70	Shale, blk		ac, cm, em		0.00
1.54	343.70	345.24	Claystone, dk gy		cv, ev		0.00
0.45	345.24	345.69	Shale, blk, coal stks		ac, cm, em		0.00
0.41	345.69	346.10	Coal, pyrite, WAYNESBURG No. 11		ac, cv, ev		0.00
0.12	346.10	346.22	Shale, blk, coal stks		ac, cm, em		0.00
1.68	346.22	347.90	Claystone, gy		cv, ev		0.00
1.80	347.90	349.70	Claystone, gy, ls nods		ak, cv, ev		0.00
1.20	349.70	350.90	Shale, gy, ss stks		cm, em		0.00
1.30	350.90	352.20	Sandstone, gy, sh stks		cs, es	y	1.30
0.65	352.20	352.85	Shale, gy, ss stks		cm, em		0.00
3.70	352.85	356.55	Sandstone, gy, crossbeds		cs, es	y	3.70
1.55	356.55	358.10	Shale, gy		cm, em		0.00
4.90	358.10	363.00	Shale, gy, ls nods		ak, cm, em		0.00
2.76	363.00	365.76	Shale, dk gy		cm, em		0.00
0.06	365.76	365.82	Shale, blk, coal stks		ac, cm, em		0.00
0.20	365.82	366.02	Coal, bone stks, LITTLE WAYNESBURG		ac, cv, ev		0.00
0.28	366.02	366.30	Claystone, dk gy		cv, ev		0.00
3.50	366.30	369.80	Limestone, shaley, nodular		ak, cs, es	y	3.50
2.05	369.80	371.85	Limestone, nodular		ak, cs, es	y	2.05
2.80	371.85	374.65	Claystone, dk gy		cv, ev		0.00
1.05	374.65	375.70	Shale, dk gy, ls nods		ak, cm, em		0.00
0.80	375.70	376.50	Limestone, nodular		ak, cs, es	y	0.80
1.70	376.50	378.20	Shale, dk gy		cm, em		0.00
1.65	378.20	379.85	Limestone, nodular		ak, cs, es	y	1.65
5.45	379.85	385.30	Shale, dk gy, ls nods		ak, cm, em		0.00
1.45	385.30	386.75	Limestone, nodular		ak, cs, es	y	1.45
3.45	386.75	390.20	Shale, grn, ls nods		ak, cm, em		0.00
2.50	390.20	392.70	Limestone, layered		ak, cs, es	y	2.50
0.85	392.70	393.55	Claystone, grn, ls nods		ak, cv, ev		0.00
0.50	393.55	394.05	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	394.05	394.65	Limestone, massive		ak, cs, es	y	0.60
2.55	394.65	397.20	Claystone, grn, ls nods		ak, cv, ev		0.00
1.90	397.20	399.10	Shale, dk gy		cm, em		0.00
1.65	399.10	400.75	Shale, gy, ss stks		cm, em		0.00
0.65	400.75	401.40	Sandstone, gy, massive		cs, es	y	0.65
1.45	401.40	402.85	Shale, gy, interbedded ss		cm, em		0.00
2.05	402.85	404.90	Shale, dk gy		cm, em		0.00
1.45	404.90	406.35	Claystone, red/ gy		cv, ev		0.00
0.40	406.35	406.75	Claystone, gy		cv, ev		0.00
0.50	406.75	407.25	Limestone, shaley, nodular		ak, cs, es	y	0.50
0.65	407.25	407.90	Shale, dk gy, ls nods		ak, cm, em		0.00
1.35	407.90	409.25	Limestone, shaley, nodular		ak, cs, es	y	1.35
1.05	409.25	410.30	Shale, dk gy, ls nods		ak, cm, em		0.00
0.80	410.30	411.10	Limestone, shaley, nodular		ak, cs, es	y	0.80
2.15	411.10	413.25	Shale, dk gy, ls nods		ak, cm, em		0.00
0.80	413.25	414.05	Limestone, nodular		ak, cs, es	y	0.80
1.90	414.05	415.95	Claystone, grn		cv, ev		0.00
1.05	415.95	417.00	Limestone, nodular		ak, cs, es	y	1.05
4.85	417.00	421.85	Shale, grn, ls nods		ak, cm, em		0.00
1.15	421.85	423.00	Limestone, massive		ak, cs, es	y	1.15
1.15	423.00	424.15	Shale, dk gy, ls nods		ak, cm, em		0.00
0.65	424.15	424.80	Limestone, nodular		ak, cs, es	y	0.65
1.85	424.80	426.65	Shale, dk gy, ls nods		ak, cm, em		0.00
3.20	426.65	429.85	Limestone, shaley, nodular		ak, cs, es	y	3.20
0.70	429.85	430.55	Shale, dk gy, ls nods		ak, cm, em		0.00
1.85	430.55	432.40	Limestone, massive		ak, cs, es	y	1.85
1.80	432.40	434.20	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	434.20	434.95	Limestone, nodular		ak, cs, es	y	0.75
1.95	434.95	436.90	Shale, gy, ls nods		ak, cm, em		0.00
1.90	436.90	438.80	Limestone, shaley, nodular		ak, cs, es	y	1.90
3.90	438.80	442.70	Shale, grn, ls nods		ak, cm, em		0.00
0.55	442.70	443.25	Limestone, massive		ak, cs, es	y	0.55
3.55	443.25	446.80	Shale, dk gy, ls nods		ak, cm, em		0.00
4.55	446.80	451.35	Limestone, shaley, nodular		ak, cs, es	y	4.55
3.95	451.35	455.30	Shale, grn, ls nods		ak, cm, em		0.00
1.75	455.30	457.05	Limestone, shaley, nodular		ak, cs, es	y	1.75
2.50	457.05	459.55	Shale, dk gy, ls nods		ak, cm, em		0.00
5.95	459.55	465.50	Limestone, shaley, nodular		ak, cs, es	y	5.95

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-30

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.20	465.50	466.70	Shale, dk gy, ls nods		ak, cm, em		0.00
2.60	466.70	469.30	Shale, grn, ls nods		ak, cm, em		0.00
1.75	469.30	471.05	Shale, gy, ls nods		ak, cm, em		0.00
5.65	471.05	476.70	Limestone, nodular		ak, cs, es	y	5.65
4.10	476.70	480.80	Shale, dk gy, ls nods		ak, cm, em		0.00
2.60	480.80	483.40	Limestone, nodular		ak, cs, es	y	2.60
1.20	483.40	484.60	Claystone, grn, ls nods		ak, cv, ev		0.00
5.65	484.60	490.25	Shale, dk gy, ls nods		ak, cm, em		0.00
3.50	490.25	493.75	Limestone, shaley, nodular		ak, cs, es	y	3.50
5.55	493.75	499.30	Shale, dk gy, ls nods		ak, cm, em		0.00
2.15	499.30	501.45	Limestone, massive		ak, cs, es	y	2.15
2.95	501.45	504.40	Limestone, shaley, layered		ak, cs, es	y	2.95
3.20	504.40	507.60	Shale, dk gy, ls nods		ak, cm, em		0.00
2.97	507.60	510.57	Claystone, dk gy		cv, ev		0.00
0.15	510.57	510.72	Coal, bone stks, SEWICKLEY No. 9		ac, cv, ev		0.00
0.02	510.72	510.74	Shale, blk, coal stks		ac, cm, em		0.00
0.45	510.74	511.19	Coal		ac, cv, ev		0.00
0.18	511.19	511.37	Coal, sh stks		ac, cv, ev		0.00
0.21	511.37	511.58	Coal, bone stks		ac, cv, ev		0.00
0.12	511.58	511.70	Coal, sh stks		ac, cv, ev		0.00
0.07	511.70	511.77	Shale, blk		ac, cm, em		0.00
0.19	511.77	511.96	Coal, sh stks		ac, cv, ev		0.00
0.08	511.96	512.04	Shale, dk gy		cm, em		0.00
1.21	512.04	513.25	Coal		ac, cv, ev		0.00
0.09	513.25	513.34	Coal, bone stks		ac, cv, ev		0.00
0.04	513.34	513.38	Shale, blk, coal stks		ac, cm, em		0.00
1.27	513.38	514.65	Shale, dk gy		cm, em		0.00
1.05	514.65	515.70	Limestone, shaley, nodular		ak, cs, es	y	1.05
0.80	515.70	516.50	Shale, dk gy		cm, em		0.00
2.90	516.50	519.40	Limestone, nodular		ak, cs, es	y	2.90
8.50	519.40	527.90	Shale, gy, ls nods		ak, cm, em		0.00
1.50	527.90	529.40	Shale, dk gy, ss stks, ls nods		ak, cm, em		0.00
1.60	529.40	531.00	Sandstone, gy, sh stks, calcite cemented		ak, cs, es	y	1.60
2.60	531.00	533.60	Shale, dk gy, ss stks		cm, em		0.00
0.50	533.60	534.10	Shale, dk gy		cm, em		0.00
1.00	534.10	535.10	Shale, blk, coal stks		ac, cm, em		0.00
2.10	535.10	537.20	Shale, dk gy		cm, em		0.00
0.08	537.20	537.28	Coal, bone stks, FISHPOT		ac, cv, ev		0.00
0.21	537.28	537.49	Shale, blk		ac, cm, em		0.00
0.70	537.49	538.19	Coal, bone stks		ac, cv, ev		0.00
0.17	538.19	538.36	Shale, dk gy		cm, em		0.00
0.44	538.36	538.80	Coal		ac, cv, ev		0.00
0.15	538.80	538.95	Shale, blk, coal stks		ac, cm, em		0.00
0.08	538.95	539.03	Shale, blk		ac, cm, em		0.00
0.07	539.03	539.10	Coal, sh stks		ac, cv, ev		0.00
0.60	539.10	539.70	Shale, dk gy		cm, em		0.00
0.70	539.70	540.40	Shale, dk gy, ls nods		ak, cm, em		0.00
3.70	540.40	544.10	Limestone, shaley, layered		ak, cs, es	y	3.70
1.35	544.10	545.45	Limestone, mosaic		ak, cs, es	y	1.35
3.35	545.45	548.80	Limestone, shaley, nodular		ak, cs, es	y	3.35
1.60	548.80	550.40	Limestone, nodular		ak, cs, es	y	1.60
2.60	550.40	553.00	Limestone, shaley, layered		ak, cs, es	y	2.60
1.10	553.00	554.10	Shale, gy, ls nods		ak, cm, em		0.00
2.40	554.10	556.50	Limestone, massive		ak, cs, es	y	2.40
2.10	556.50	558.60	Limestone, shaley, nodular		ak, cs, es	y	2.10
0.70	558.60	559.30	Claystone, gy, ls nods		ak, cv, ev		0.00
0.60	559.30	559.90	Limestone, shaley, nodular		ak, cs, es	y	0.60
4.90	559.90	564.80	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.05	564.80	566.85	Sandstone, gy, sh stks		cs, es	y	2.05
2.45	566.85	569.30	Shale, dk gy		cm, em		0.00
1.30	569.30	570.60	Shale, dk gy, ls nods		ak, cm, em		0.00
1.85	570.60	572.45	Limestone, massive		ak, cs, es	y	1.85
1.55	572.45	574.00	Limestone, shaley, nodular		ak, cs, es	y	1.55
1.10	574.00	575.10	Shale, dk gy, ls nods		ak, cm, em		0.00
1.20	575.10	576.30	Limestone, nodular		ak, cs, es	y	1.20
2.40	576.30	578.70	Claystone, grn, ls nods		ak, cv, ev		0.00
0.15	578.70	578.85	Claystone, blk/ tan		ac, cv, ev		0.00
0.26	578.85	579.11	Shale, blk, coal stks		ac, cm, em		0.00

DIAMOND DRILL HOLE: CLC-2002-30

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
0.46	579.11	579.57	Coal, sh stks, REDSTONE		ac, cv, ev		0.00
0.11	579.57	579.68	Shale, blk		ac, cm, em		0.00
1.82	579.68	581.50	Shale, dk gy, ls nods		ak, cm, em		0.00
3.45	581.50	584.95	Limestone, shaley, nodular		ak, cs, es	y	3.45
0.45	584.95	585.40	Shale, dk gy, ls nods		ak, cm, em		0.00
4.00	585.40	589.40	Limestone, nodular		ak, cs, es	y	4.00
0.25	589.40	589.65	Shale, dk gy, ls nods		ak, cm, em		0.00
1.75	589.65	591.40	Limestone, massive		ak, cs, es	y	0.25
0.40	591.40	591.80	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.55	591.80	594.35	Limestone, massive		ak, cs, es	y	0.40
3.70	594.35	598.05	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.50	598.05	599.55	Shale, dk gy, ls nods		ak, cm, em		0.00
1.65	599.55	601.20	Claystone, gy, ls nods		ak, cv, ev		0.00
1.10	601.20	602.30	Claystone, gy		cv, ev		0.00
0.50	602.30	602.80	Claystone, dk gy		cv, ev		0.00
0.06	602.80	602.86	Shale, blk		ac, cm, em		0.00
0.82	602.86	603.68	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.65	603.68	604.33	Claystone, blk/ tan		ac, cv, ev		0.00
0.31	604.33	604.64	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.05	604.64	604.69	Shale, blk		ac, cm, em		0.00
0.17	604.69	604.86	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.32	604.86	605.18	Coal, pyrite, PITTSBURGH No. 8 ROOF COAL		ac, cv, ev		0.00
0.14	605.18	605.32	Shale, blk		ac, cm, em		0.00
0.62	605.32	605.94	Claystone, blk/ tan		ac, cv, ev		0.00
0.23	605.94	606.17	Bone, coal layers, PITTSBURGH No. 8		ac, cv, ev		0.00
0.33	606.17	606.50	Coal, bone stks		ac, cv, ev		0.00
2.22	606.50	608.72	Coal		ac, cv, ev		0.00
0.03	608.72	608.75	Shale, blk, coal stks		ac, cm, em		0.00
0.49	608.75	609.24	Coal		ac, cv, ev		0.00
0.02	609.24	609.26	Shale, blk, coal stks		ac, cm, em		0.00
1.02	609.26	610.28	Coal		ac, cv, ev		0.00
0.03	610.28	610.31	Shale, dk gy		cm, em		0.00
1.04	610.31	611.35	Coal		ac, cv, ev		0.00
0.15	611.35	611.50	Shale, blk		ac, cm, em		0.00
0.60	611.50	612.10	Claystone, dk gy		cv, ev		0.00
3.60	612.10	615.70	Shale, gy, ls nods		ak, cm, em		0.00
4.25	615.70	619.95	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.45	619.95	620.40	Claystone, dk gy		cv, ev		0.00
0.80	620.40	621.20	Shale, gy, ls nods		ak, cm, em		0.00
1.20	621.20	622.40	Claystone, dk gy, ls nods		ak, cv, ev		0.00
0.90	622.40	623.30	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
0.45	623.30	623.75	Shale, gy, ss stks		cm, em		0.00
0.75	623.75	624.50	Shale, gy, interbedded ss		cm, em		0.00
1.10	624.50	625.60	Sandstone, gy, sh stks		cs, es	y	1.10
Total Depth		625.60					148.97

Acid Producing: ac
 Alkaline Producing: ak
 Compactible: c (v-very, m-moderate, s-slight)
 Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit

148.97

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit

24%

	Thickness (ft.)	Percent (%)
Hard Rock:	148.97	24%
Soft Rock:	476.63	76%
	625.60	

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-30

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	Thickness of Hard Rock HR (ft.)
--------------------	------------------------	-------------	--------	------------------	------------------------	--

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

<u>Stratum</u>	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft. Coal	159.69	1.68	1.46	52.57	-107.25
Bottom, 10 ft.	325.50	1.95	1.77	60.95	-264.50

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-33

Field Engineer: Kim Cecil
 Surface Elevation: 1250
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 681560
 Easting: 2427890
 Drilling Company: Kerogen Resources

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
19.00	0.00	19.00	Casing				0.00
3.50	19.00	22.50	Shale, gy	Yes	cm, em		0.00
0.70	22.50	23.20	Shale, gy, ls nods	Yes	ak, cm, em		0.00
3.80	23.20	27.00	Claystone, red/ gy	Yes	cv, ev		0.00
2.90	27.00	29.90	Claystone, dk gy	Yes	cv, ev		0.00
2.15	29.90	32.05	Shale, gy, sandy, ls nods		ak, cm, em		0.00
1.50	32.05	33.55	Shale, gy		cm, em		0.00
1.25	33.55	34.80	Limestone, shaley, nodular		ak, cs, es	y	1.25
2.00	34.80	36.80	Claystone, dk gy, ls nods		ak, cv, ev		0.00
6.20	36.80	43.00	Claystone, red/ gy		cv, ev		0.00
11.65	43.00	54.65	Shale, gy, ls nods		ak, cm, em		0.00
0.85	54.65	55.50	Limestone, shaley, nodular		ak, cs, es	y	0.85
0.85	55.50	56.35	Shale, gy, ls nods		ak, cm, em		0.00
1.45	56.35	57.80	Sandstone, gy, calcite cemented		ak, cs, es	y	1.45
3.80	57.80	61.60	Shale, gy, ls nods		ak, cm, em		0.00
2.60	61.60	64.20	Shale, gy		cm, em		0.00
3.70	64.20	67.90	Claystone, red/ gy		cv, ev		0.00
2.90	67.90	70.80	Shale, gy, ls nods		ak, cm, em		0.00
5.45	70.80	76.25	Claystone, red		cv, ev		0.00
1.25	76.25	77.50	Claystone, gy		cv, ev		0.00
1.95	77.50	79.45	Shale, gy, ls nods		ak, cm, em		0.00
5.90	79.45	85.35	Shale, gy, sandy		cm, em		0.00
1.80	85.35	87.15	Shale, gy, ss stks		cm, em		0.00
2.65	87.15	89.80	Shale, gy		cm, em		0.00
2.10	89.80	91.90	Shale, gy, ss stks		cm, em		0.00
1.00	91.90	92.90	Shale, dk gy		cm, em		0.00
4.30	92.90	97.20	Shale, gy, ss stks		cm, em		0.00
0.45	97.20	97.65	Claystone, gy		cv, ev		0.00
0.85	97.65	98.50	Shale, gy		cm, em		0.00
0.30	98.50	98.80	Claystone, red		cv, ev		0.00
2.80	98.80	101.60	Shale, gy, ls nods		ak, cm, em		0.00
1.60	101.60	103.20	Shale, gy		cm, em		0.00
2.15	103.20	105.35	Shale, red		cm, em		0.00
0.75	105.35	106.10	Shale, gy		cm, em		0.00
0.10	106.10	106.20	Shale, blk		ac, cm, em		0.00
4.55	106.20	110.75	Shale, dk gy, ls nods		ak, cm, em		0.00
0.95	110.75	111.70	Limestone, shaley, nodular		ak, cs, es	y	0.95
4.65	111.70	116.35	Shale, gy, ls nods		ak, cm, em		0.00
0.85	116.35	117.20	Limestone, nodular		ak, cs, es	y	0.85
1.15	117.20	118.35	Claystone, red/ gy, ls nods		ak, cv, ev		0.00
0.85	118.35	119.20	Claystone, gy, ls nods		ak, cv, ev		0.00
4.05	119.20	123.25	Claystone, red		cv, ev		0.00
1.55	123.25	124.80	Shale, gy		cm, em		0.00
0.55	124.80	125.35	Shale, red/ gy		cm, em		0.00
1.35	125.35	126.70	Shale, gy		cm, em		0.00
3.85	126.70	130.55	Claystone, red		cv, ev		0.00
0.95	130.55	131.50	Claystone, red/ gy		cv, ev		0.00
5.40	131.50	136.90	Shale, gy, sandy, ls nods		ak, cm, em		0.00
9.90	136.90	146.80	Claystone, gy, ls nods		ak, cv, ev		0.00
1.95	146.80	148.75	Shale, gy, ls nods		ak, cm, em		0.00
3.25	148.75	152.00	Shale, gy, sandy, ls nods		ak, cm, em		0.00
5.90	152.00	157.90	Shale, gy, ls nods		ak, cm		0.00
2.35	157.90	160.25	Claystone, gy, ls nods		ak, cv, ev		0.00
3.90	160.25	164.15	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
3.35	164.15	167.50	Shale, gy, ls nods		ak, cm, em		0.00
2.55	167.50	170.05	Claystone, dk gy		cv, ev		0.00
2.25	170.05	172.30	Shale, dk gy, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-33

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
2.70	172.30	175.00	Shale, dk gy		cm, em		0.00
1.55	175.00	176.55	Shale, blk		ac, cm, em		0.00
0.55	176.55	177.10	Shale, gy, ss stks		cm, em		0.00
0.65	177.10	177.75	Shale, gy, sandy, ls nods		ak, cm, em		0.00
4.05	177.75	181.80	Shale, gy		cm, em		0.00
2.00	181.80	183.80	Shale, dk gy, ls nods		ak, cm, em		0.00
0.30	183.80	184.10	Limestone, shaley, nodular		ak, cs, es	y	0.30
6.55	184.10	190.65	Shale, dk gy, ls nods		ak, cm, em		0.00
4.05	190.65	194.70	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
0.30	194.70	195.00	Claystone, gy		cv, ev		0.00
0.15	195.00	195.15	Shale, blk		ac, cm, em		0.00
2.35	195.15	197.50	Shale, dk gy, ls nods		ak, cm, em		0.00
0.70	197.50	198.20	Limestone, shaley, nodular		ak, cs, es	y	0.70
2.90	198.20	201.10	Shale, dk gy, ls nods		ak, cm, em		0.00
1.10	201.10	202.20	Shale, gy, sandy, ls nods		ak, cm, em		0.00
0.90	202.20	203.10	Claystone, dk gy		cv, ev		0.00
3.80	203.10	206.90	Shale, gy, sandy, ls nods		ak, cm, em		0.00
3.40	206.90	210.30	Shale, dk gy, ls nods		ak, cm, em		0.00
5.68	210.30	215.98	Shale, dk gy		cm, em		0.00
0.59	215.98	216.57	Shale, blk		ac, cm, em		0.00
1.67	216.57	218.24	Coal, pyrite, WASHINGTON No. 12		ac, cv, ev		0.00
0.23	218.24	218.47	Claystone, dk gy		cv, ev		0.00
0.75	218.47	219.22	Coal, bone stks		ac, cv, ev		0.00
0.16	219.22	219.38	Shale, dk gy		cm, em		0.00
0.45	219.38	219.83	Bone, coal stks		ac, cv, ev		0.00
0.72	219.83	220.55	Coal, bone stks		ac, cv, ev		0.00
2.70	220.55	223.25	Claystone, gy		cv, ev		0.00
14.50	223.25	237.75	Claystone, gy, ls nods		ak, cv, ev		0.00
1.05	237.75	238.80	Shale, gy, ls nods		ak, cm, em		0.00
3.65	238.80	242.45	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
2.70	242.45	245.15	Shale, gy, ss stks		cm, em		0.00
2.95	245.15	248.10	Sandstone, gy, sh stks		cs, es	y	2.95
7.65	248.10	255.75	Sandstone, gy, calcite cemented		ak, cs, es	y	7.65
3.45	255.75	259.20	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
4.22	259.20	263.42	Shale, dk gy		cm, em		0.00
0.50	263.42	263.92	Coal, bone stks, WAYNESBURG "A"		ac, cv, ev		0.00
0.06	263.92	263.98	Shale, blk, coal stks		ac, cm, em		0.00
0.38	263.98	264.36	Bone coal layers		ac, cv, ev		0.00
0.15	264.36	264.51	Coal, bone stks		ac, cv, ev		0.00
0.23	264.51	264.74	Shale, blk, coal stks		ac, cm, em		0.00
3.29	264.74	268.03	Coal, bone stks		ac, cv, ev		0.00
1.22	268.03	269.25	Bone coal layers		ac, cv, ev		0.00
0.38	269.25	269.63	Coal, sh stks		ac, cv, ev		0.00
0.67	269.63	270.30	Shale, dk gy, ls nods		ak, cm, em		0.00
0.90	270.30	271.20	Shale, blk		ac, cm, em		0.00
1.90	271.20	273.10	Claystone, dk gy		cv, ev		0.00
9.55	273.10	282.65	Claystone, dk gy, ls nods		ak, cv, ev		0.00
7.75	282.65	290.40	Shale, gy, ls nods		ak, cm, em		0.00
0.90	290.40	291.30	Limestone, shaley, nodular		ak, cs, es	y	0.90
7.30	291.30	298.60	Shale, dk gy, ls nods		ak, cm, em		0.00
1.90	298.60	300.50	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.75	300.50	302.25	Shale, gy, ls nods		ak, cm, em		0.00
1.15	302.25	303.40	Shale, dk gy		cm, em		0.00
1.95	303.40	305.35	Shale, dk gy, ls nods		ak, cm, em		0.00
0.70	305.35	306.05	Limestone, shaley, nodular		ak, cs, es	y	0.70
1.70	306.05	307.75	Shale, dk gy, ls nods		ak, cm, em		0.00
0.60	307.75	308.35	Shale, blk		ac, cm, em		0.00
1.55	308.35	309.90	Shale, gy, ls nods		ak, cm, em		0.00
1.85	309.90	311.75	Shale, gy		cm, em		0.00
1.15	311.75	312.90	Sandstone, gy, sh stks		cs, es	y	1.15
4.55	312.90	317.45	Shale, gy, ss stks		cm, em		0.00
0.90	317.45	318.35	Shale, dk gy, ls nods		ak, cm, em		0.00
7.05	318.35	325.40	Sandstone, gy, sh stks		cs, es	y	7.05
3.75	325.40	329.15	Shale, dk gy, ss stks, ls nods		ak, cm, em		0.00
4.36	329.15	333.51	Shale, dk gy, ls nods		ak, cm, em		0.00
0.06	333.51	333.57	Shale, blk		ac, cm, em		0.00
0.14	333.57	333.71	Coal, pyrite, WAYNESBURG No. 11		ac, cv, ev		0.00
0.89	333.71	334.60	Claystone, dk gy		cv, ev		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-33

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.35	334.60	335.95	Shale, dk gy, ls nods		ak, cm, em		0.00
1.80	335.95	337.75	Limestone, nodular		ak, cs, es	y	1.80
1.55	337.75	339.30	Shale, gy		cm, em		0.00
3.25	339.30	342.55	Shale, gy, ls nods		ak, cm, em		0.00
0.60	342.55	343.15	Limestone, massive		ak, cs, es	y	0.60
1.80	343.15	344.95	Shale, dk gy, ls nods		ak, cm, em		0.00
1.55	344.95	346.50	Limestone, shaley, nodular		ak, cs, es	y	1.55
1.05	346.50	347.55	Shale, dk gy, ls nods		ak, cm, em		0.00
0.55	347.55	348.10	Limestone, nodular		ak, cs, es	y	0.55
1.40	348.10	349.50	Limestone, shaley, mosaic		ak, cs, es	y	1.40
2.80	349.50	352.30	Shale, dk gy, ls nods		ak, cm, em		0.00
1.30	352.30	353.60	Limestone, shaley, nodular		ak, cs, es	y	1.30
4.15	353.60	357.75	Shale, gy, ls nods		ak, cm, em		0.00
3.55	357.75	361.30	Limestone, shaley, nodular		ak, cs, es	y	3.55
1.90	361.30	363.20	Claystone, tan		cv, ev		0.00
0.75	363.20	363.95	Claystone, dk gy		cv, ev		0.00
1.40	363.95	365.35	Claystone, grn, ls nods		ak, cv, ev		0.00
1.20	365.35	366.55	Shale, gy		cm, em		0.00
1.25	366.55	367.80	Sandstone, gy, sh stks		cs, es	y	1.25
2.20	367.80	370.00	Shale, gy, interbedded ss		cm, em		0.00
0.90	370.00	370.90	Shale, dk gy		cm, em		0.00
0.60	370.90	371.50	Claystone, red/ gy		cv, ev		0.00
1.40	371.50	372.90	Claystone, red		cv, ev		0.00
0.70	372.90	373.60	Shale, dk gy		cm, em		0.00
0.35	373.60	373.95	Limestone, shaley, nodular		ak, cs, es	y	0.35
1.25	373.95	375.20	Shale, gy, ls nods		ak, cm, em		0.00
1.10	375.20	376.30	Limestone, massive		ak, cs, es	y	1.10
1.80	376.30	378.10	Shale, dk gy, ls nods		ak, cm, em		0.00
0.90	378.10	379.00	Limestone, shaley, nodular		ak, cs, es	y	0.90
2.00	379.00	381.00	Shale, dk gy, ls nods		ak, cm, em		0.00
0.75	381.00	381.75	Limestone, nodular		ak, cs, es	y	0.75
2.75	381.75	384.50	Claystone, grn, ls nods		ak, cv, ev		0.00
3.90	384.50	388.40	Shale, gy, ls nods		ak, cm, em		0.00
1.20	388.40	389.60	Limestone, massive		ak, cs, es	y	1.20
1.55	389.60	391.15	Shale, dk gy, ls nods		ak, cm, em		0.00
1.55	391.15	392.70	Limestone, shaley, massive		ak, cs, es	y	1.55
0.55	392.70	393.25	Shale, dk gy, ls nods		ak, cm, em		0.00
0.95	393.25	394.20	Limestone, shaley, nodular		ak, cs, es	y	0.95
1.80	394.20	396.00	Shale, dk gy, ls nods		ak, cm, em		0.00
3.40	396.00	399.40	Limestone, nodular		ak, cs, es	y	3.40
2.50	399.40	401.90	Shale, dk gy, ls nods		ak, cm, em		0.00
0.55	401.90	402.45	Limestone, massive		ak, cs, es	y	0.55
3.75	402.45	406.20	Shale, dk gy, ls nods		ak, cm, em		0.00
3.15	406.20	409.35	Shale, grn, ls nods		ak, cm, em		0.00
0.85	409.35	410.20	Limestone, shaley, nodular		ak, cs, es	y	0.85
6.40	410.20	416.60	Shale, dk gy, ls nods		ak, cm, em		0.00
2.15	416.60	418.75	Limestone, shaley, layered		ak, cs, es	y	2.15
4.25	418.75	423.00	Shale, grn, ls nods		ak, cm, em		0.00
0.45	423.00	423.45	Shale, dk gy, ls nods		ak, cm, em		0.00
1.50	423.45	424.95	Limestone, shaley, nodular		ak, cs, es	y	1.50
3.55	424.95	428.50	Shale, dk gy, ls nods		ak, cm, em		0.00
2.50	428.50	431.00	Limestone, shaley, nodular		ak, cs, es	y	2.50
5.15	431.00	436.15	Shale, dk gy, ls nods		ak, cm, em		0.00
3.10	436.15	439.25	Limestone, shaley, nodular		ak, cs, es	y	3.10
0.25	439.25	439.50	Shale, dk gy, ls nods		ak, cm, em		0.00
3.30	439.50	442.80	Limestone, shaley, nodular		ak, cs, es	y	3.30
3.60	442.80	446.40	Shale, gy, ls nods		ak, cm, em		0.00
4.65	446.40	451.05	Limestone, massive		ak, cs, es	y	4.65
0.85	451.05	451.90	Shale, dk gy, ls nods		ak, cm, em		0.00
2.70	451.90	454.60	Limestone, shaley, layered		ak, cs, es	y	2.70
0.90	454.60	455.50	Claystone, grn, ls nods		ak, cv, ev		0.00
1.30	455.50	456.80	Limestone, massive		ak, cs, es	y	1.30
1.15	456.80	457.95	Shale, dk gy, ls nods		ak, cm, em		0.00
1.25	457.95	459.20	Limestone, shaley, nodular		ak, cs, es	y	1.25
0.70	459.20	459.90	Shale, dk gy, ls nods		ak, cm, em		0.00
3.20	459.90	463.10	Shale, gy, ls nods		ak, cm, em		0.00
3.40	463.10	466.50	Limestone, massive		ak, cs, es	y	3.40
0.25	466.50	466.75	Shale, dk gy, ls nods		ak, cm, em		0.00

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-33

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
1.15	466.75	467.90	Limestone, nodular		ak, cs, es	y	1.15
0.50	467.90	468.40	Shale, dk gy, ls nods		ak, cm, em		0.00
1.10	468.40	469.50	Limestone, shaley, nodular		ak, cs, es	y	1.10
2.70	469.50	472.20	Shale, dk gy, ls nods		ak, cm, em		0.00
0.80	472.20	473.00	Shale, dk gy		cm, em		0.00
0.45	473.00	473.45	Shale, dk gy, ls nods		ak, cm, em		0.00
0.40	473.45	473.85	Limestone, shaley, nodular		ak, cs, es	y	0.40
1.43	473.85	475.28	Shale, dk gy, ls nods		ak, cm, em		0.00
0.05	475.28	475.33	Shale, blk		ac, cm, em		0.00
0.25	475.33	475.58	Shale, dk gy, ls nods		ak, cm, em		0.00
0.57	475.58	476.15	Coal, bone stks, SEWICKLEY No. 9		ac, cv, ev		0.00
0.06	476.15	476.21	Shale, blk		ac, cm, em		0.00
1.19	476.21	477.40	Claystone, dk gy		cv, ev		0.00
1.05	477.40	478.45	Claystone, dk gy, ls nods		ak, cv, ev		0.00
1.45	478.45	479.90	Shale, gy, ls nods		ak, cm, em		0.00
9.70	479.90	489.60	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
6.30	489.60	495.90	Shale, dk gy, ls nods		ak, cm, em		0.00
2.20	495.90	498.10	Shale, gy		cm, em		0.00
1.80	498.10	499.90	Shale, gy, ss stks		cm, em		0.00
0.70	499.90	500.60	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.45	500.60	502.05	Shale, gy, ls nods		ak, cm, em		0.00
1.97	502.05	504.02	Shale, dk gy		cm, em		0.00
0.16	504.02	504.18	Shale, blk, coal stks		ac, cm, em		0.00
0.22	504.18	504.40	Sandstone, gy, sh stks		cs, es	y	0.22
1.31	504.40	505.71	Sandstone, gy, coal bands		cs, es	y	1.31
0.08	505.71	505.79	Shale, blk, coal stks		ac, cm, em		0.00
1.62	505.79	507.41	Shale, dk gy, ls nods		ak, cm, em		0.00
0.92	507.41	508.33	Coal, bone stks, FISHPOT		ac, cv, ev		0.00
0.24	508.33	508.57	Shale, dk gy		cm, em		0.00
0.67	508.57	509.24	Coal, bone stks		ac, cv, ev		0.00
0.11	509.24	509.35	Shale, blk		ac, cm, em		0.00
0.80	509.35	510.15	Shale, dk gy		cm, em		0.00
2.60	510.15	512.75	Limestone, massive		ak, cs, es	y	2.60
0.35	512.75	513.10	Shale, dk gy, ls nods		ak, cm, em		0.00
2.65	513.10	515.75	Limestone, shaley, mosaic		ak, cs, es	y	2.65
0.55	515.75	516.30	Shale, dk gy, ls nods		ak, cm, em		0.00
1.75	516.30	518.05	Limestone, massive		ak, cs, es	y	1.75
0.45	518.05	518.50	Shale, dk gy, ls nods		ak, cm, em		0.00
6.40	518.50	524.90	Limestone, massive		ak, cs, es	y	6.40
0.20	524.90	525.10	Claystone, dk gy		cv, ev		0.00
1.90	525.10	527.00	Limestone, massive		ak, cs, es	y	1.90
0.45	527.00	527.45	Claystone, grn, ls nods		ak, cv, ev		0.00
0.45	527.45	527.90	Limestone, massive		ak, cs, es	y	0.45
0.40	527.90	528.30	Shale, dk gy, ls nods		ak, cm, em		0.00
0.95	528.30	529.25	Limestone, shaley, nodular		ak, cs, es	y	0.95
1.05	529.25	530.30	Claystone, grn, ls nods		ak, cv, ev		0.00
1.40	530.30	531.70	Shale, gy, ls nods		ak, cm, em		0.00
0.50	531.70	532.20	Shale, gy, ss stks		cm, em		0.00
1.20	532.20	533.40	Sandstone, gy, sh stks		cs, es	y	1.20
0.30	533.40	533.70	Shale, gy, ss stks		cm, em		0.00
1.10	533.70	534.80	Sandstone, gy, sh stks		cs, es	y	1.10
0.40	534.80	535.20	Shale, gy, ss stks		cm, em		0.00
3.55	535.20	538.75	Shale, dk gy		cm, em		0.00
0.80	538.75	539.55	Shale, dk gy, ls nods		ak, cm, em		0.00
3.15	539.55	542.70	Limestone, shaley, nodular		ak, cs, es	y	3.15
1.30	542.70	544.00	Claystone, grn, ls nods		ak, cv, ev		0.00
1.35	544.00	545.35	Claystone, gy		cv, ev		0.00
0.18	545.35	545.53	Claystone, dk gy		cv, ev		0.00
0.43	545.53	545.90	Coal, bone stks, REDSTONE		ac, cv, ev		0.00
0.10	545.96	546.06	Shale, blk, coal stks		ac, cm, em		0.00
0.41	546.06	546.47	Coal, bone stks		ac, cv, ev		0.00
0.06	546.47	546.53	Shale, blk		ac, cm, em		0.00
0.62	546.53	547.15	Claystone, gy		cv, ev		0.00
1.85	547.15	549.00	Shale, gy, ss stks		cm, em		0.00
1.60	549.00	550.60	Shale, dk gy, ls nods		ak, cm, em		0.00
1.60	550.60	552.20	Limestone, shaley, nodular		ak, cs, es	y	1.60
0.35	552.20	552.55	Shale, dk gy, ls nods		ak, cm, em		0.00
1.40	552.55	553.95	Limestone, shaley, nodular		ak, cs, es	y	1.40

ATTACHMENT 13

DIAMOND DRILL HOLE: CLC-2002-33

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
5.40	553.95	559.35	Limestone, massive		ak, cs, es	y	5.40
1.70	559.35	561.05	Shale, gy, ls nods		ak, cm, em		0.00
1.85	561.05	562.90	Limestone, shaley, nodular		ak, cs, es	y	1.85
3.60	562.90	566.50	Claystone, dk gy, ls nods		ak, cv, ev		0.00
2.26	566.50	568.76	Claystone, gy		cv, ev		0.00
0.15	568.76	568.91	Shale, blk		ac, cm, em		0.00
0.54	568.91	569.45	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.09	569.45	569.54	Shale, blk		ac, cm, em		0.00
0.59	569.54	570.13	Claystone, blk/ tan, layered		ac, cv, ev		0.00
0.07	570.13	570.20	Shale, blk		ac, cm, em		0.00
0.08	570.20	570.28	Pyrite		ac, cs, es		0.00
0.73	570.28	571.01	Coal, pyrite, PITTSBURGH No. 8 ROOF COAL		ac, cv, ev		0.00
0.13	571.01	571.14	Claystone, dk gy		cv, ev		0.00
1.03	571.14	572.17	Coal, bone stks		ac, cv, ev		0.00
0.04	572.17	572.21	Claystone, dk gy		cv, ev		0.00
0.06	572.21	572.27	Shale, blk, coal stks		ac, cm, em		0.00
0.12	572.27	572.39	Coal, bone stks		ac, cv, ev		0.00
0.05	572.39	572.44	Shale, blk		ac, cm, em		0.00
0.78	572.44	573.22	Shale, dk gy		cm, em		0.00
0.37	573.22	573.59	Coal, bone stks, PITTSBURGH No. 8		ac, cv, ev		0.00
1.62	573.59	575.21	Coal		ac, cv, ev		0.00
0.03	575.21	575.24	Claystone, dk gy		cv, ev		0.00
0.55	575.24	575.79	Coal		ac, cv, ev		0.00
0.02	575.79	575.81	Claystone, gy		cv, ev		0.00
1.22	575.81	577.03	Coal		ac, cv, ev		0.00
0.03	577.03	577.06	Bone, coal stks		ac, cv, ev		0.00
1.24	577.06	578.30	Coal		ac, cv, ev		0.00
0.10	578.30	578.40	Coal, pyrite		ac, cv, ev		0.00
0.12	578.40	578.52	Coal, bone stks		ac, cv, ev		0.00
1.15	578.52	579.67	Claystone, dk gy		cv, ev		0.00
2.85	579.67	582.52	Claystone, dk gy, ls nods		ak, cv, ev		0.00
3.95	582.52	586.47	Claystone, gy, ls nods		ak, cv, ev		0.00
1.80	586.47	588.27	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
0.20	588.27	588.47	Claystone, gy		cv, ev		0.00
4.15	588.47	592.62	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
1.90	592.62	594.52	Shale, gy, ls nods		ak, cm, em		0.00
0.20	594.52	594.72	Claystone, gy		cv, ev		0.00
1.00	594.72	595.72	Shale, gy, ss stks, ls nods		ak, cm, em		0.00
Total Depth		595.72					112.78

Acid Producing: ac

Alkaline Producing: ak

Compactable: c (v-very, m-moderate, s-slight)

Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit

112.78

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit

19%

	Thickness (Ft.)	Percent (%)
Hard Rock:	112.78	19%
Soft Rock:	482.94	81%
	595.72	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization		Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃
	Potential, tons/1000 tons as CaCO ₃	Total Sulphur %		(Total Sul.)	(Total Sul.)
Roof, 10 ft.	31.76	2.77	2.08	86.58	54.65
Coal					
Bottom, 10 ft.	182.60	2.39	2.15	74.70	-107.77

DIAMOND DRILL HOLE: Y+O-04

Field Engineer: Unknown
 Surface Elevation: 980
 Drill Hole Coordinates (State Plane 1927 NA Datum)
 Northing: 685490
 Easting: 2431690
 Drilling Company: Unknown

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
6.00	0.00	6.00	Surface material				0.00
2.50	6.00	8.50	Coal, sh stks, WAYNESBURG "A"		ac, cv, ev		0.00
2.50	8.50	11.00	Shale, dk gy		cm, em		0.00
4.00	11.00	15.00	Shale, gy, ls nods		ak, cm, em		0.00
8.00	15.00	23.00	Shale, gy, sandy		cm, em		0.00
1.00	23.00	24.00	Shale, gy, soft		cm, em		0.00
13.00	24.00	37.00	Shale, gy, sandy		cm, em		0.00
12.00	37.00	49.00	Shale, dk gy		cm, em		0.00
14.00	49.00	63.00	Shale, gm		cm, em		0.00
8.00	63.00	71.00	Shale, dk gy, sandy		cm, em		0.00
4.00	71.00	75.00	Shale, dk gy		cm, em		0.00
0.28	75.00	75.28	Coal w/ bone, WAYNESBURG No. 11		ac, cv, ev		0.00
0.72	75.28	76.00	Claystone, gy		cv, ev		0.00
4.00	76.00	80.00	Limestone		ak, cs, es	y	4.00
4.00	80.00	84.00	Shale, gm		cm, em		0.00
18.00	84.00	102.00	Limestone, shaley		ak, cs, es	y	18.00
3.50	102.00	105.50	Shale, gm, sandy		cm, em		0.00
6.00	105.50	111.50	Shale, gy, sandy		cm, em		0.00
1.50	111.50	113.00	Shale, red		cm, em		0.00
32.00	113.00	145.00	Limestone, shaley		ak, cs, es	y	32.00
3.00	145.00	148.00	Shale, gm		cm, em		0.00
69.00	148.00	217.00	Limestone, shaley		ak, cs, es	y	69.00
3.50	217.00	220.50	Shale, dk gy		cm, em		0.00
2.50	220.50	223.00	Coal, SEWICKLEY No. 9		ac, cv, ev		0.00
1.50	223.00	224.50	Claystone, gy		cv, ev		0.00
3.00	224.50	227.50	Shale, dk gy		cm, em		0.00
8.50	227.50	236.00	Shale, gm, ls nods		ak, cm, em		0.00
5.00	236.00	241.00	Shale, dk gy		cm, em		0.00
3.00	241.00	244.00	Shale, gy, sandy		cm, em		0.00
3.00	244.00	247.00	Shale, dk gy		cm, em		0.00
1.12	247.00	248.12	Coal w/ bone, FISHPOT		ac, cv, ev		0.00
0.20	248.12	248.32	Claystone, gy		cv, ev		0.00
0.72	248.32	249.04	Coal w/ bone		ac, cv, ev		0.00
0.62	249.04	249.66	Shale, dk gy		cm, em		0.00
19.34	249.66	269.00	Limestone		ak, cs, es	y	19.34
2.00	269.00	271.00	Shale, gm, ls nods		ak, cm, em		0.00
4.00	271.00	275.00	Shale, gy, sandy		cm, em		0.00
5.00	275.00	280.00	Shale, dk gy		cm, em		0.00
4.00	280.00	284.00	Limestone		ak, cs, es	y	4.00
1.50	284.00	285.50	Shale, dk gy, soft		cm, em		0.00
1.50	285.50	287.00	Coal, REDSTONE		ac, cv, ev		0.00
4.00	287.00	291.00	Shale, dk gy		cm, em		0.00
10.00	291.00	301.00	Limestone		ak, cs, es	y	10.00
4.00	301.00	305.00	Limestone, shaley		ak, cs, es	y	4.00
4.50	305.00	309.50	Shale, dk gy, soft		cm, em		0.00
0.62	309.50	310.12	Shale, blk		ac, cm, em		0.00
1.16	310.12	311.28	Coal, PITTSBURGH No. 8 ROOF COAL		ac, cv, ev		0.00
0.88	311.28	312.16	Draw slate		cm, em		0.00
0.20	312.16	312.36	Shale, blk		ac, cm, em		0.00
2.24	312.36	314.60	Coal, PITTSBURGH No. 8		ac, cv, ev		0.00
0.06	314.60	314.66	Shale, gy		cm, em		0.00
1.54	314.66	316.20	Coal		ac, cv, ev		0.00
0.02	316.20	316.22	Shale, gy		cm, em		0.00
1.06	316.22	317.28	Coal		ac, cv, ev		0.00
0.02	317.28	317.30	Pyrite		ac, cs, es		0.00
0.10	317.30	317.40	Coal		ac, cv, ev		0.00
2.50	317.40	319.90	Claystone, gy		cv, ev		0.00
1.10	319.90	321.00	Limestone		ak, cs, es	y	0.00
Total Depth			321.00				160.34

ATTACHMENT 13

DIAMOND DRILL HOLE: Y+O-04

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)
--------------------	------------------------	-------------	--------	------------------	------------------------	----	------------------------------------

Acid Producing: ac
 Alkaline Producing: ak
 Compactible: c (v-very, m-moderate, s-slight)
 Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit 160.34

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit 50%

	Thickness (Ft.)	Percent (%)
Hard Rock:	160.34	50%
Soft Rock:	160.66	50%
	<u>321.00</u>	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Pyritic Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)	CaCO ₃ Deficiency, tons/1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft. Coal	271.33	2.63	2.12	80.68	-190.95
Bottom, 10 ft.	121.56	2.68	2.23	83.34	-33.67

Field Engineer: Jon Murray
 Surface Elevation: 1332.43 ATTACHMENT 13
 Drill Hole Coordinates (State Plane 1983 NA Datum)
 Northing: 691846.73 AEC - 2008-04
 Easting: 2400501.69
 Drilling Company: West Virginia Resources, Inc.

Ferm to Strata

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	Ferm
30.00	0.00	30.00	Casing or Surface Material				0.00	001
0.40	30.00	30.40	Gray Sandstone w/ Shale Streaks	Y	cs, es	Y	0.40	543
2.00	30.40	32.40	Dark Gray Shale		cm, em		0.00	124
1.40	32.40	33.80	Nodular Limestone		ak, cs, es	Y	1.40	906
0.60	33.80	34.40	Dark Gray Massive Shale		cm, em		0.00	125
1.50	34.40	35.90	Shaley Nodular Limestone		ak, cs, es	Y	1.50	806
6.80	35.90	42.70	Core Loss				0.00	4
0.90	42.70	43.60	Light Gray/Green Fireclay w/ Limestone Nods		ak, cv, ev		0.00	237
2.70	43.60	46.30	Shaley Layered Limestone		ak, cs, es	Y	2.70	802
0.50	46.30	46.80	Dark Gray Shale		cm, em		0.00	124
5.00	46.80	51.80	Light Gray/Green Shale w/Sandstone Streaks		cm, em		0.00	333
3.20	51.80	55.00	Light Gray Green Massive Shale		cm, em		0.00	135
5.80	55.00	60.80	Red Claystone		cv, ev		0.00	167
2.70	60.80	63.50	Light Gray/Green Fireclay w/ Limestone Nods		ak, cv, ev		0.00	237
3.00	63.50	66.50	Light Gray Green Churned Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	435
4.30	66.50	70.80	Light Gray Green Massive Shale		cm, em		0.00	135
2.70	70.80	73.50	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
5.40	73.50	78.90	Gray Sandstone w/ Shale Streaks		cs, es	Y	5.40	543
12.00	78.90	90.90	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
2.00	90.90	92.90	Dark Gray Fireclay w/ Limestone Nods		ak, cv, ev		0.00	227
0.80	92.90	93.70	Nodular Limestone		ak, cs, es	Y	0.80	906
3.30	93.70	97.00	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
2.70	97.00	99.70	Core Loss				0.00	4
2.00	99.70	101.70	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.40	101.70	104.10	Light Gray/Green Shale & Interbedded Sandstone		cm, em	Y	2.40	332
4.50	104.10	108.60	Red & Green Churned Shale		cm, em		0.00	155
3.70	108.60	112.30	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
4.50	112.30	116.80	Red & Green Claystone		cv, ev		0.00	157
1.90	116.80	118.70	Dark Gray Shale		cm, em		0.00	124
3.20	118.70	121.90	Shaley Nodular Limestone		ak, cs, es	Y	3.20	806
3.70	121.90	125.60	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
3.80	125.60	129.40	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
1.80	129.40	131.20	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
6.40	131.20	137.60	Light Gray/Green Shale & Int. Sandstone with Limestone Nodules		ak, cm, em	Y	6.40	432
6.50	137.60	144.10	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.90	144.10	147.00	Gray Sandstone w/ Shale Streaks		cs, es	Y	2.90	543
4.70	147.00	151.70	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
3.30	151.70	155.00	Red & Green Shale		cm, em		0.00	154
2.20	155.00	157.20	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
5.80	157.20	163.00	Red & Green Churned Shale		cm, em		0.00	155
3.00	163.00	166.00	Red & Green Claystone		cv, ev		0.00	157
6.40	166.00	172.40	Light Gray/Green Shale & Int. Sandstone with Limestone Nodules		ak, cm, em	Y	6.40	432
2.90	172.40	175.30	Light Gray/Green Shale & Interbedded Sandstone		cm, em	Y	2.90	332
7.30	175.30	182.60	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
4.00	182.60	186.60	Red & Green Churned Shale		cm, em		0.00	155
3.70	186.60	190.30	Dark Gray Shale		cm, em		0.00	124
7.70	190.30	198.00	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
1.70	198.00	199.70	Light Gray/Green Shale w/ Limestone Nods		ak, cm, em		0.00	234
2.20	199.70	201.90	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
4.10	201.90	206.00	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.40	206.00	207.40	Shaley Layered Limestone		ak, cs, es	Y	1.40	802
2.00	207.40	209.40	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
9.30	209.40	218.70	Red Massive Shale w/ Limestone Nods		ak, cm, em		0.00	265
6.70	218.70	225.40	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
6.00	225.40	231.40	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
7.40	231.40	238.80	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
5.00	238.80	243.80	Red & Green Churned Shale		cm, em		0.00	155
2.50	243.80	246.30	Red & Green Shale		cm, em		0.00	154
6.10	246.30	252.40	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
1.20	252.40	253.60	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
0.70	253.60	254.30	Shaley Nodular Limestone		ak, cs, es	Y	0.70	806
1.00	254.30	255.30	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.80	255.30	257.10	Shaley Layered Limestone		ak, cs, es	Y	1.80	802
1.00	257.10	258.10	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.20	258.10	260.30	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.80	260.30	263.10	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
3.90	263.10	267.00	Red Churned Shale		cm, em		0.00	165
6.40	267.00	273.40	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.00	273.40	275.40	Light Gray/Green Shale & Int. Sandstone with Limestone Nodules		ak, cm, em	Y	2.00	432
4.20	275.40	279.60	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
2.00	279.60	281.60	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
9.30	281.60	290.90	Dark Gray Shale		cm, em		0.00	124
1.10	290.90	292.00	Black Churned Shale with Limestone Nods		ak, cm, em		0.00	215
1.30	292.00	293.30	Nodular Limestone		ak, cs, es	Y	1.30	906
7.10	293.30	300.40	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
1.90	300.40	302.30	Dark Gray Massive Shale		cm, em		0.00	125
1.40	302.30	303.70	Black Massive Shale		ac, cm, em		0.00	115

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	Ferm
ATTACHMENT 13								
2.50	303.70	306.20	Coal with shale streaks		ac, cm, em		0.00	28
0.80	306.20	307.00	Coal with bone streaks	AEC - 2008-04	ac, cm, em		0.00	23
0.50	307.00	307.50	Dark Gray Shale		cm, em		0.00	124
1.10	307.50	308.60	Coal with bone streaks		ac, cm, em		0.00	23
4.90	308.60	313.50	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
3.10	313.50	316.60	Shaley Layered Limestone		ak, cs, es	Y	3.10	802
17.50	316.60	334.10	Light Gray Green Shale w/ SS Siks and Limestone Nods		ak, cm, em		0.00	433
11.00	334.10	345.10	Gray Sandstone w/ Shale Streaks		cs, es	Y	11.00	543
10.00	345.10	355.10	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.20	355.10	358.30	Dark Gray Massive Shale		cm, em		0.00	125
0.50	358.30	358.80	Black Shale W/Coal Streaks		ac, cm, em		0.00	113
0.40	358.80	359.20	Coal with shale layers		ac, cm, em		0.00	27
0.70	359.20	359.90	Coal with shale streaks		ac, cm, em		0.00	28
1.70	359.90	361.60	Coal with bone streaks		ac, cm, em		0.00	23
1.80	361.60	363.40	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
4.80	363.40	368.20	Shaley Layered Limestone		ak, cs, es	Y	4.80	802
1.80	368.20	370.00	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
2.70	370.00	372.70	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
4.20	372.70	376.90	Gray Calcite Cemented Sandstone w/ Shale Streaks		ak, cs, es	Y	4.20	643
10.30	376.90	387.20	Light Gray Green Shale w/ SS Siks and Limestone Nods		ak, cm, em		0.00	433
1.30	387.20	388.50	Shaley Nodular Limestone		ak, cs, es	Y	1.30	806
5.80	388.50	394.30	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
3.90	394.30	398.20	Dark Gray Massive Shale		cm, em		0.00	125
1.70	398.20	399.90	Light Gray/Green Shale & Int. Sandstone with Limestone Nodules		ak, cm, em	Y	1.70	432
1.40	399.90	401.30	Light Gray/Green Shale w/Sandstone Streaks		cm, em		0.00	333
2.70	401.30	404.00	Coal with bone streaks		ac, cm, em		0.00	23
1.00	404.00	405.00	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
3.20	405.00	408.20	Dark Gray Shale and Interbedded Sandstone		cm, em	Y	3.20	322
3.40	408.20	411.60	Light Gray Green Shale w/ SS Siks and Limestone Nods		ak, cm, em		0.00	433
1.20	411.60	412.80	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
9.60	412.80	422.40	Light Gray Green Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	434
0.70	422.40	423.10	Dark Gray Massive Shale		cm, em		0.00	125
0.30	423.10	423.40	Coal with bone streaks		ac, cm, em		0.00	23
1.00	423.40	424.40	Dark Gray Massive Shale		cm, em		0.00	125
2.20	424.40	426.60	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.50	426.60	429.10	Shaley Nodular Limestone		ak, cs, es	Y	2.50	806
5.00	429.10	434.10	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
4.00	434.10	438.10	Shaley Mosaic Limestone		ak, cs, es	Y	4.00	805
2.80	438.10	440.90	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.90	440.90	444.80	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.90	444.80	446.70	Shaley Nodular Limestone		ak, cs, es	Y	1.90	806
5.00	446.70	451.70	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
6.20	451.70	457.90	Light Gray/Green Shale & Interbedded Sandstone		cm, em	Y	6.20	332
3.50	457.90	461.40	Light Gray/Green Shale w/Sandstone Streaks		cm, em		0.00	333
1.70	461.40	463.10	Red & Green Shale		cm, em		0.00	154
14.80	463.10	477.90	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
1.40	477.90	479.30	Shaley Nodular Limestone		ak, cs, es	Y	1.40	806
5.80	479.30	485.10	Shaley Layered Limestone		ak, cs, es	Y	5.80	802
4.00	485.10	489.10	Shaley Nodular Limestone		ak, cs, es	Y	4.00	806
4.30	489.10	493.40	Shaley Layered Limestone		ak, cs, es	Y	4.30	802
2.50	493.40	495.90	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.50	495.90	499.40	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
3.30	499.40	502.70	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
2.70	502.70	505.40	Shaley Layered Limestone		ak, cs, es	Y	2.70	802
8.10	505.40	513.50	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
4.30	513.50	517.80	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.90	517.80	520.70	Shaley Nodular Limestone		ak, cs, es	Y	2.90	806
7.00	520.70	527.70	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
4.40	527.70	532.10	Shaley Layered Limestone		ak, cs, es	Y	4.40	802
4.00	532.10	536.10	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
6.80	536.10	542.90	Shaley Nodular Limestone		ak, cs, es	Y	6.80	806
2.00	542.90	544.90	Shaley Layered Limestone		ak, cs, es	Y	2.00	802
6.80	544.90	551.70	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
3.50	551.70	555.20	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.00	555.20	557.20	Shaley Nodular Limestone		ak, cs, es	Y	2.00	806
0.80	557.20	558.00	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
5.80	558.00	563.80	Shaley Layered Limestone		ak, cs, es	Y	5.80	802
2.40	563.80	566.20	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
2.30	566.20	568.50	Coal with bone streaks		ac, cm, em		0.00	23
2.00	568.50	570.50	Dark Gray Massive Shale		cm, em		0.00	125
2.00	570.50	573.40	Light Gray/Green Massive Churned Sandy Shale		cm, em		0.00	335
6.50	573.40	579.90	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
10.80	579.90	590.70	Dark Gray Layered Sandy Shale w/ Limestone Nods		cm, em		0.00	423
2.90	590.70	593.60	Dark Gray Massive Shale		cm, em		0.00	125
1.40	593.60	595.00	Coal with shale streaks		ac, cm, em		0.00	28
1.10	595.00	596.10	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
9.70	596.10	605.80	Shaley Nodular Limestone		ak, cs, es	Y	9.70	806
2.90	605.80	608.70	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
3.90	608.70	612.60	Nodular Limestone		ak, cs, es	Y	3.90	806
2.80	612.60	615.40	Shaley Layered Limestone		ak, cs, es	Y	2.80	802
2.70	615.40	618.10	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
3.80	618.10	621.90	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
2.00	621.90	623.90	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.70	623.90	626.60	Nodular Limestone		ak, cs, es	Y	2.70	806
2.90	626.60	629.50	Shaley Nodular Limestone		ak, cs, es	Y	2.90	806
2.80	629.50	632.30	Light Gray Green Fireclay		cv, ev		0.00	137
2.90	632.30	635.20	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
9.90	635.20	645.10	Shaley Nodular Limestone		ak, cs, es	Y	9.90	806
3.20	645.10	648.30	Shaley Layered Limestone		ak, cs, es	Y	3.20	802

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	3 of 3 Ferm
2.50	648.30	650.80	Light Gray/Green Fireclay w/ Limestone Nods		ak, cv, ev		0.00	237
2.00	650.80	652.80	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
2.70	652.80	655.50	Dark Gray Fireclay w/ Limestone Nods		ak, cv, ev		0.00	227
1.90	655.50	657.40	Dark Gray Massive Shale		cm, em		0.00	125
0.55	657.40	657.95	Coal with bone streaks		ac, cm, em		0.00	23
0.20	657.95	658.15	Coal with shale streaks		ac, cm, em		0.00	28
1.00	658.15	659.15	Dark Gray Massive Shale		cm, em		0.00	125
5.15	659.15	664.30	Coal, common banded		ac, cm, em		0.00	21
1.20	664.30	665.50	Dark Gray Shale		cm, em		0.00	124
2.50	665.50	668.00	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
0.70	668.00	668.70	Shaley Layered Limestone		ak, cs, es	Y	0.70	802
4.90	668.70	673.60	Light Gray Green Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	434
1.50	673.60	675.10	Dark Gray Shale and Interbedded Sandstone		cm, em	Y	1.50	322
8.25	675.10	683.35	Gray Crossbedded Sandstone		cs, es	Y	8.25	541
2.80	683.35	686.15	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
Total Depth		686.15					175.15	

Acid Producing: ac
Alkaline Producing: ak
Compactable: c (v-very, m-moderate, s-slight)
Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit

175.15

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit

26%

	Thickness (Ft.)	Percent (%)
Hard Rock:	175.15	26%
Soft Rock:	511.00	74%
	686.15	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	189.36	1.82	56.78
Coal	1.96	4.29	134.00
Bottom, 10 ft.	171.70	2.05	64.05

Field Engineer: Jon Murray
 Surface Elevation: 986.341 ATTACHMENT 13
 Drill Hole Coordinates (State Plane 1983 NA Datum)
 Northing: 685524.00 AEC - 2008-05
 Easting: 2400495.456
 Drilling Company: West Virginia Resources, Inc.



Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Hard Rock Thickness of (ft.)	Ferm
9.00	0.00	9.00	Casing or Surface Material				0.00	001
2.70	9.00	11.70	Light Gray Green Fireclay		cv, ev		0.00	137
0.30	11.70	12.00	Gray Sandstone w/ Shale Streaks	Y	cs, es	Y	0.30	543
2.60	12.00	14.60	Dark Gray Massive Shale		cm, em		0.00	125
0.60	14.60	15.20	Shaley Layered Limestone		ak, cs, es	Y	0.60	802
2.90	15.20	18.10	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
1.90	18.10	20.00	Light Gray Green Fireclay		cv, ev		0.00	137
1.40	20.00	21.40	Light Gray/Green Shale w/ Limestone Nods		ak, cm, em		0.00	234
2.70	21.40	24.10	Sandstone		cs, es	Y	2.70	540
5.40	24.10	29.50	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
2.50	29.50	32.00	Light Gray/Green Fireclay w/ Limestone Nods		ak, cv, ev		0.00	237
4.70	32.00	36.70	Light Gray Green Churned Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	435
5.50	36.70	42.20	Light Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	5.50	432
2.50	42.20	44.70	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
1.40	44.70	46.10	Dark Gray Shale		cm, em		0.00	124
1.20	46.10	47.30	Black Shale		ac, cm, em		0.00	114
3.90	47.30	51.20	Dark Gray Shale		cm, em		0.00	124
5.60	51.20	56.80	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
17.00	56.80	73.80	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.10	73.80	76.90	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
0.25	76.90	77.15	Coal with Bone streaks		ac, cm, em		0.00	23
0.80	77.15	77.95	Dark Gray Fireclay		cv, ev		0.00	127
1.20	77.95	79.15	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.50	79.15	82.65	Shaley Nodular Limestone		ak, cs, es	Y	3.50	806
3.50	82.65	86.15	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
0.70	86.15	86.85	Shaley Nodular Limestone		ak, cs, es	Y	0.70	806
2.00	86.85	88.85	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
1.50	88.85	90.35	Shaley Nodular Limestone		ak, cs, es	Y	1.50	806
1.10	90.35	91.45	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
1.50	91.45	92.95	Shaley Mosaic Limestone		ak, cs, es	Y	1.50	805
2.80	92.95	95.75	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.20	95.75	96.95	Shaley Layered Limestone		ak, cs, es	Y	1.20	802
3.30	96.95	100.25	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
3.00	100.25	103.25	Shaley Layered Limestone		ak, cs, es	Y	3.00	802
2.40	103.25	105.65	Dark Gray Fireclay w/ Limestone Nods		ak, cv, ev		0.00	227
9.90	105.65	115.55	Light Gray Green Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	434
2.30	115.55	117.85	Red & Green Churned Shale		cm, em		0.00	155
2.50	117.85	120.35	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
1.20	120.35	121.55	Shaley Nodular Limestone		ak, cs, es	Y	1.20	806
4.10	121.55	125.65	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
1.10	125.65	126.75	Shaley Nodular Limestone		ak, cs, es	Y	1.10	806
6.80	126.75	133.55	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.00	133.55	135.55	Shaley Nodular Limestone		ak, cs, es	Y	2.00	806
6.10	135.55	141.65	Shaley Layered Limestone		ak, cs, es	Y	6.10	802
3.00	141.65	144.65	Shaley Nodular Limestone		ak, cs, es	Y	3.00	806
6.20	144.65	150.85	Light Gray/Green Shale w/ Limestone Nods		ak, cm, em		0.00	234
4.20	150.85	155.05	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
0.70	155.05	155.75	Shaley Nodular Limestone		ak, cs, es	Y	0.70	806
3.50	155.75	159.25	Light Gray/Green Shale w/ Limestone Nods		ak, cm, em		0.00	234
3.70	159.25	162.95	Shaley Nodular Limestone		ak, cs, es	Y	3.70	806
0.60	162.95	163.55	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
0.90	163.55	164.45	Shaley Nodular Limestone		ak, cs, es	Y	0.90	806
4.10	164.45	168.55	Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	245
5.30	168.55	173.85	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.10	173.85	176.95	Shaley Layered Limestone		ak, cs, es	Y	3.10	802
2.20	176.95	179.15	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
8.60	179.15	187.75	Shaley Layered Limestone		ak, cs, es	Y	8.60	802
3.80	187.75	191.55	Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	245
5.30	191.55	196.85	Nodular Limestone		ak, cs, es	Y	5.30	906
6.10	196.85	202.95	Shaley Layered Limestone		ak, cs, es	Y	6.10	802
1.30	202.95	204.25	Green Shale w/ Limestone Nods		ak, cm, em		0.00	244
3.10	204.25	207.35	Shaley Layered Limestone		ak, cs, es	Y	3.10	802
2.30	207.35	209.65	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
5.50	209.65	215.15	Shaley Nodular Limestone		ak, cs, es	Y	5.50	806
4.90	215.15	220.05	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
2.40	220.05	222.45	Dark Gray Massive Shale		cm, em		0.00	125
2.20	222.45	224.65	Coal with Bone streaks		ac, cm, em		0.00	23
5.00	224.65	229.65	Dark Gray Massive Shale		cm, em		0.00	125
8.70	229.65	238.35	Light Gray Green Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	434
3.80	238.35	242.15	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
4.60	242.15	246.75	Dark Gray Shale and Interbedded Sandstone		cm, em	Y	4.60	322
0.80	246.75	247.55	Dark Gray Shale		cm, em		0.00	124
0.75	247.55	248.30	Black Shale w/ Coal Streaks		ac, cm, em		0.00	113
1.10	248.30	249.40	Dark Gray Shale		cm, em		0.00	124
1.90	249.40	251.30	Coal with Shale Layers		ac, cm, em		0.00	27
0.80	251.30	252.10	Dark Gray Shale		cm, em		0.00	124
16.40	252.10	268.50	Shaley Nodular Limestone		ak, cs, es	Y	16.40	806

9:40 AM 3/19/2008

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	Ferm
ATTACHMENT 13								
2.90	268.50	271.40	Shaley Layered Limestone		ak, cs, es	Y	2.90	802
13.90	271.40	285.30	Dark Gray Shale w/ Limestone Nods	AEC - 2008-05	ak, cm, em		0.00	224
2.90	285.30	288.20	Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	245
0.60	288.20	288.80	Bone with Coal streaks		ac, cm, em		0.00	33
2.00	288.80	290.80	Dark Gray Massive Shale		cm, em		0.00	125
1.50	290.80	292.30	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
6.00	292.30	298.30	Shaley Nodular Limestone		ak, cs, es	Y	6.00	806
2.70	298.30	301.00	Nodular Limestone		ak, cs, es	Y	2.70	906
0.90	301.00	301.90	Shaley Nodular Limestone		ak, cs, es	Y	0.90	806
1.60	301.90	303.50	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
1.90	303.50	305.40	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.90	305.40	307.30	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
2.00	307.30	309.30	Light Gray/Green Fireclay w/ Limestone Nods		ak, cv, ev		0.00	237
1.90	309.30	311.20	Black/ Tan Layered Shale		ac, cm, em		0.00	172
0.50	311.20	311.70	Black Massive Shale		ac, cm, em		0.00	115
1.15	311.70	312.85	Pyritic Coal		ac, cm, em		0.00	29
0.25	312.85	313.10	Coal with Shale Streaks		ac, cm, em		0.00	28
0.75	313.10	313.85	Black/ Brown Churned Shale		ac, cm, em		0.00	175
3.95	313.85	317.80	Coal, Common Banded		ac, cm, em		0.00	21
0.10	317.80	317.90	Pyrite Band		ac, cm, em		0.00	84
1.15	317.90	319.05	Coal, Common Banded		ac, cm, em		0.00	21
0.15	319.05	319.20	Dark Gray Massive Shale		cm, em		0.00	125
1.60	319.20	320.80	Light Gray Green Massive Shale		cm, em		0.00	135
2.25	320.80	323.05	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
3.20	323.05	326.25	Light Gray Green Churned Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	435
3.10	326.25	329.35	Light Gray Green Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	423
5.40	329.35	334.75	Light Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	5.40	432
7.40	334.75	342.15	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
1.20	342.15	343.35	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.25	343.35	344.60	Red & Green Churned Shale		cm, em		0.00	155
Total Depth							109.80	

Acid Producing: ac
Alkaline Producing: ak
Compactable: c (v-very, m-moderate, s-slight)
Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit 109.80

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit 32%

	Thickness (Ft.)	Percent (%)
Hard Rock:	109.80	32%
Soft Rock:	234.80	68%
	344.60	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	132.28	2.35	73.50
Coal	2.20	5.93	185.00
Bottom, 10 ft.	107.05	2.26	70.60

Field Engineer: Jon Murray
 Surface Elevation: 1269.761 ATTACHMENT 13
 Drill Hole Coordinates (State Plane 1983 NA Datum)
 Northing: 691119.868 AEC - 2008-06
 Easting: 2394530.661
 Drilling Company: McKee Drilling

Page No. 1 of 3

Ferm to Strata

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	Ferm
21.00	0.00	21.00	Casing or Surface Material				0.00	001
0.60	21.00	21.60	Dark Gray Fireclay				0.00	127
3.40	21.60	25.00	Red & Green Shale		cv, ev		0.00	154
5.60	25.00	30.60	Red & Green Claystone		cm, em		0.00	157
11.10	30.60	41.70	Light Gray Green Shale w/ SS Stks and Limestone Nods	Y	cv, ev		0.00	433
3.10	41.70	44.80	Gray Sandstone w/ Shale Streaks	Y	ak, cm, em	Y	3.10	543
2.90	44.80	47.70	Light Gray Green Massive Shale	Y	cs, es		0.00	135
2.00	47.70	49.70	Red & Green Churned Shale	Y	cm, em		0.00	155
9.30	49.70	59.00	Dark Gray Massive Shale		cm, em		0.00	125
4.40	59.00	63.40	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.70	63.40	66.10	Light Gray/Green Shale & Interbedded Sandstone		cm, em	Y	2.70	332
7.40	66.10	73.50	Light Gray Green Massive Shale		cm, em		0.00	135
2.40	73.50	75.90	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
3.20	75.90	79.10	Light Gray Green Shale w/ SS Stks and Limestone Nods	Y	ak, cm, em		0.00	433
2.50	79.10	81.60	Sandstone	Y	cs, es	Y	2.50	540
8.00	81.60	89.60	Light Gray Green Shale		cm, em		0.00	134
9.10	89.60	98.70	Red & Green Churned Shale		cm, em		0.00	155
5.00	98.70	103.70	Light Gray/Green Shale & Interbedded Sandstone		cm, em	Y	5.00	332
5.10	103.70	108.80	Red & Green Claystone		cv, ev		0.00	157
2.30	108.80	111.10	Light Gray/Green Shale w/Sandstone Streaks		cm, em		0.00	333
2.80	111.10	113.90	Red & Green Churned Shale		cm, em		0.00	155
11.60	113.90	125.50	Red & Green Shale		cm, em		0.00	154
2.40	125.50	127.90	Red Churned Shale		cm, em		0.00	165
0.80	127.90	128.70	Light Gray Green Fireclay		cv, ev		0.00	137
7.10	128.70	135.80	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
5.10	135.80	140.90	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
1.70	140.90	142.60	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.40	142.60	144.00	Shaley Layered Limestone		ak, cs, es	Y	1.40	802
3.10	144.00	147.10	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
9.10	147.10	156.20	Red Massive Shale w/ Limestone Nods		ak, cm, em		0.00	265
5.70	156.20	161.90	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
3.70	161.90	165.60	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.60	165.60	167.20	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
12.90	167.20	180.10	Red & Green Churned Shale		cm, em		0.00	155
4.70	180.10	184.80	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
2.90	184.80	187.70	Shaley Nodular Limestone		ak, cs, es	Y	2.90	806
7.10	187.70	194.80	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
3.80	194.80	198.60	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
7.10	198.60	205.70	Dark Gray Sandy Shale w/ Limestone Nods		cm, em		0.00	423
7.40	205.70	213.10	Dark Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	7.40	422
1.50	213.10	214.60	Dark Gray Shale		cm, em		0.00	124
0.80	214.60	215.40	Coal with Shale Layers		ac, cm, em		0.00	27
0.70	215.40	216.10	Dark Gray Shale		cm, em		0.00	124
2.50	216.10	218.60	Light Gray Green Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	434
2.10	218.60	220.70	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
3.30	220.70	224.00	Dark Gray Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	424
7.70	224.00	231.70	Dark Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	7.70	422
3.10	231.70	234.80	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
5.70	234.80	240.50	Dark Gray Massive Shale		cm, em		0.00	125
1.60	240.50	242.10	Coal with Shale Layers		ac, cm, em		0.00	27
1.60	242.10	243.70	Coal with Shale Streaks		ac, cm, em		0.00	28
0.90	243.70	244.60	Dark Gray Shale		cm, em		0.00	124
0.40	244.60	245.00	Black Layered Shale		ac, cm, em		0.00	112
0.80	245.00	245.80	Coal with Bone Streaks		ac, cm, em		0.00	23
2.70	245.80	248.50	Dark Gray Massive Shale		cm, em		0.00	125
5.80	248.50	254.30	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
1.90	254.30	256.20	Light Gray/Green Shale w/Limestone Nods		ak, cm, em		0.00	234
24.70	256.20	280.90	Light Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	24.70	432
1.60	280.90	282.50	Light Gray/Green Shale w/Sandstone Streaks		cm, em		0.00	333
8.50	282.50	291.00	Gray Crossbedded Sandstone		cs, es	Y	8.50	541
5.00	291.00	296.00	Dark Gray Layered Sandy Shale w/ Limestone Nods		cm, em		0.00	423
6.30	296.00	302.30	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
0.50	302.30	302.80	Dark Gray Massive Shale		cm, em		0.00	125
1.90	302.80	304.70	Coal with Shale Layers		ac, cm, em		0.00	27
1.00	304.70	305.70	Shaley Layered Limestone		ak, cs, es	Y	1.00	802
0.70	305.70	306.40	Black Massive Shale		ac, cm, em		0.00	115
2.70	306.40	309.10	Shaley Layered Limestone		ak, cs, es	Y	2.70	802
4.60	309.10	313.70	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.40	313.70	316.10	Shaley Nodular Limestone		ak, cs, es	Y	2.40	806
3.80	316.10	319.90	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
4.90	319.90	324.80	Light Gray/Green Shale & Interbedded Sandstone		cm, em	Y	4.90	332
4.00	324.80	328.80	Light Gray/Green Shale w/Sandstone Streaks		cm, em		0.00	333
0.50	328.80	329.30	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.00	329.30	330.30	Nodular Limestone		ak, cs, es	Y	1.00	906
4.60	330.30	334.90	Light Gray/Green Shale w/Limestone Nods		ak, cm, em		0.00	234
4.60	334.90	339.50	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	2308
5.00	339.50	344.50	Dark Gray Layered Sandy Shale w/ Limestone Nods		cm, em		0.00	423

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	Ferm
ATTACHMENT 13								
0.50	344.50	345.00	Dark Gray Massive Shale		cm, em		0.00	125
1.50	345.00	346.50	Coal with Bone Streaks	AEC - 2008-06	ac, cm, em		0.00	23
2.00	346.50	348.50	Dark Gray Massive Shale		cm, em		0.00	125
9.60	348.50	358.10	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
1.60	358.10	359.70	Dark Gray Shale		cm, em		0.00	124
0.30	359.70	360.00	Coal with Shale Streaks		ac, cm, em		0.00	28
1.00	360.00	361.00	Dark Gray Fireclay		cv, ev		0.00	127
1.50	361.00	362.50	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.90	362.50	365.40	Shaley Nodular Limestone		ak, cs, es	Y	2.90	806
5.50	365.40	370.90	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.70	370.90	372.60	Nodular Limestone		ak, cs, es	Y	1.70	906
2.00	372.60	374.60	Shaley Mosaic Limestone		ak, cs, es	Y	2.00	805
3.50	374.60	378.10	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
5.60	378.10	383.70	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
0.60	383.70	384.30	Shaley Nodular Limestone		ak, cs, es	Y	0.60	806
3.00	384.30	387.30	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
5.50	387.30	392.80	Light Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	5.50	432
4.50	392.80	397.30	Light Gray/Green Shale w/Sandstone Streaks		cm, em		0.00	333
2.80	397.30	400.10	Red & Green Shale		cm, em		0.00	154
5.50	400.10	405.60	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
1.00	405.60	406.60	Shaley Nodular Limestone		ak, cs, es	Y	1.00	806
7.00	406.60	413.60	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
3.00	413.60	416.60	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.10	416.60	419.70	Shaley Layered Limestone		ak, cs, es	Y	3.10	802
5.40	419.70	425.10	Nodular Limestone		ak, cs, es	Y	5.40	906
3.00	425.10	428.10	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.30	428.10	430.40	Shaley Layered Limestone		ak, cs, es	Y	2.30	802
3.50	430.40	433.90	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
3.70	433.90	437.60	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
2.50	437.60	440.10	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
3.30	440.10	443.40	Nodular Limestone		ak, cs, es	Y	3.30	906
3.10	443.40	446.50	Light Gray/Green Shale w/Limestone Nods		ak, cm, em		0.00	234
3.60	446.50	450.10	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
6.70	450.10	456.80	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.40	456.80	459.20	Shaley Layered Limestone		ak, cs, es	Y	2.40	802
6.40	459.20	465.60	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.50	465.60	468.10	Shaley Nodular Limestone		ak, cs, es	Y	2.50	806
3.50	468.10	471.60	Shaley Layered Limestone		ak, cs, es	Y	3.50	802
2.50	471.60	474.10	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
5.70	474.10	479.80	Nodular Limestone		ak, cs, es	Y	5.70	906
9.80	479.80	489.60	Shaley Layered Limestone		ak, cs, es	Y	9.80	802
2.40	489.60	492.00	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.90	492.00	495.90	Shaley Nodular Limestone		ak, cs, es	Y	3.90	806
5.00	495.90	500.90	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.50	500.90	503.40	Dark Gray Massive Shale		cm, em		0.00	125
2.00	503.40	505.40	Coal with Shale Streaks		ac, cm, em		0.00	28
1.20	505.40	506.60	Dark Gray Massive Shale		cm, em		0.00	125
5.20	506.60	511.80	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
8.80	511.80	520.60	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
11.50	520.60	532.10	Dark Gray Shale and Interbedded Sandstone		cm, em		0.00	322
1.20	532.10	533.30	Dark Gray Shale		cm, em		0.00	124
1.00	533.30	534.30	Black Layered Shale		ac, cm, em		0.00	112
0.30	534.30	534.60	Dark Gray Shale		cm, em		0.00	124
0.70	534.60	535.30	Coal with Shale Streaks		ac, cm, em		0.00	28
0.40	535.30	535.70	Dark Gray Shale		cm, em		0.00	124
0.80	535.70	536.50	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.10	536.50	538.60	Shaley Nodular Limestone		ak, cs, es	Y	2.10	806
3.10	538.60	541.70	Shaley Mosaic Limestone		ak, cs, es	Y	3.10	805
4.00	541.70	545.70	Shaley Nodular Limestone		ak, cs, es	Y	4.00	806
2.80	545.70	548.50	Shaley Mosaic Limestone		ak, cs, es	Y	2.80	805
3.00	548.50	551.50	Nodular Limestone		ak, cs, es	Y	3.00	906
11.20	551.50	562.70	Dark Gray Sandy Shale w/ Limestone Nods		cm, em		0.00	423
0.80	562.70	563.50	Dark Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	0.80	422
2.50	563.50	566.00	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
2.50	566.00	568.50	Shaley Nodular Limestone		ak, cs, es	Y	2.50	806
2.60	568.50	571.10	Shaley Layered Limestone		ak, cs, es	Y	2.60	802
2.30	571.10	573.40	Green Claystone w/Limestone Nods		ak, cv, ev		0.00	247
1.30	573.40	574.70	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
0.30	574.70	575.00	Dark Gray Massive Shale		cm, em		0.00	125
0.80	575.00	575.80	Black Shale w/Coal Streaks		ac, cm, em		0.00	113
2.00	575.80	577.80	Dark Gray Massive Shale		cm, em		0.00	125
2.90	577.80	580.70	Shaley Layered Limestone		ak, cs, es	Y	2.90	802
1.60	580.70	582.30	Shaley Mosaic Limestone		ak, cs, es	Y	1.60	805
1.90	582.30	584.20	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
7.20	584.20	591.40	Shaley Nodular Limestone		ak, cs, es	Y	7.20	806
4.80	591.40	596.20	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
3.90	596.20	600.10	Light Gray Green Fireclay		cv, ev		0.00	137
0.50	600.10	600.60	Black Massive Shale		ac, cm, em		0.00	115
0.90	600.60	601.50	Dark Gray Shale		cm, em		0.00	124
5.15	601.50	606.65	Coal, Common Banded		ac, cm, em		0.00	21
0.30	606.65	606.95	Black Shale		ac, cm, em		0.00	114
1.60	606.95	608.55	Dark Gray Shale		cm, em		0.00	124
1.70	608.55	610.25	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
2.40	610.25	612.65	Dark Gray Fireclay w/ Limestone Nods		ak, cv, ev		0.00	227
2.50	612.65	615.15	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
4.10	615.15	619.25	Dark Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	4.10	422
10.40	619.25	629.65	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	9:44 AM 3/13/2008
0.70	629.65	630.35	Dark Gray Fireclay w/ Limestone Nods		ak, cv, ev		0.00	227
0.90	630.35	631.25	Shaley Nodular Limestone		ak, cs, es	Y	0.90	806

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	Ferm
5.30	631.25	636.55	Dark Gray Massive Shale		cm, em		0.00	125
6.60	636.55	643.15	Dark Gray Shale and Interbedded Sandstone		cm, em	Y	6.60	322
Total Depth		643.15					177.70	

Acid Producing: ac
 Alkaline Producing: ak
 Compactible: c (v-very, m-moderate, s-slight)
 Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit 177.70

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit 28%

	Thickness (Ft.)	Percent (%)
Hard Rock:	177.70	28%
Soft Rock:	465.45	72%
	643.15	

ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	130.10	1.81	56.55
Coal	4.68	4.73	148.00
Bottom, 10 ft.	210.40	1.85	57.65

Field Engineer: Jon Murray
 Surface Elevation: 1291.226 ATTACHMENT 13
 Drill Hole Coordinates (State Plane 1983 NA Datum)
 Northing: 687910.651 AEC - 2008-08
 Easting: 2396655.896
 Drilling Company: McKee Drilling

Form to Strata

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	Ferm
21.00	0.00	21.00	Casing or Surface Material				0.00	001
4.00	21.00	25.00	Red & Green Claystone		cv, ev		0.00	157
7.30	25.00	32.30	Light Gray Green Churned Sandy Shale w/ Limestone Nods	Y	ak, cm, em		0.00	435
16.50	32.30	48.80	Light Gray/Green Shale w/Sandstone Streaks	Y	cm, em		0.00	333
26.70	48.80	75.50	Gray Sandstone w/ Shale Streaks	Y	cs, es	Y	26.70	543
5.00	75.50	80.50	Dark Gray Fireclay		cv, ev		0.00	127
2.10	80.50	82.60	Dark Gray Shale		cm, em		0.00	124
0.50	82.60	83.10	Black Massive Shale		ac, cm, em		0.00	115
1.60	83.10	84.70	Dark Gray Massive Shale		cm, em		0.00	125
5.30	84.70	90.00	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
7.40	90.00	97.40	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
5.30	97.40	102.70	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
3.00	102.70	105.70	Light Gray/ Green Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	3.00	432
4.00	105.70	109.70	Light Gray/Green Shale w/Sandstone Streaks		cm, em		0.00	333
3.50	109.70	113.20	Light Gray Green Massive Shale		cm, em		0.00	135
8.10	113.20	121.30	Red Claystone		cv, ev		0.00	167
6.40	121.30	127.70	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
3.30	127.70	131.00	Light Gray/Green Massive Churned Sandy Shale		cm, em		0.00	335
1.70	131.00	132.70	Red & Green Churned Shale		cm, em		0.00	155
11.00	132.70	143.70	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
7.70	143.70	151.40	Red & Green Churned Shale		cm, em		0.00	155
7.50	151.40	158.90	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
3.90	158.90	162.80	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
2.60	162.80	165.40	Shaley Layered Limestone		ak, cs, es	Y	2.60	802
1.20	165.40	166.60	Shaley Nodular Limestone		ak, cs, es	Y	1.20	806
2.60	166.60	169.20	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
8.00	169.20	177.20	Red Massive Shale w/ Limestone Nods		ak, cm, em		0.00	265
20.20	177.20	197.40	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
7.20	197.40	204.60	Red & Green Churned Shale		cm, em		0.00	155
13.80	204.60	218.40	Dark Gray Layered Sandy Shale w/ Limestone Nods		cm, em		0.00	423
4.40	218.40	222.80	Red & Green Churned Shale		cm, em		0.00	155
14.30	222.80	237.10	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
1.60	237.10	238.70	Dark Gray Shale		cm, em		0.00	124
0.30	238.70	239.00	Bone with Coal Layers		ac, cm, em		0.00	32
0.90	239.00	239.90	Dark Gray Shale		cm, em		0.00	124
5.60	239.90	245.50	Dark Gray Massive Shale		cm, em		0.00	125
2.20	245.50	247.70	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
4.00	247.70	251.70	Dark Gray Layered Sandy Shale w/ Limestone Nods		cm, em		0.00	423
8.50	251.70	260.20	Gray Crossbedded Sandstone		cs, es	Y	8.50	541
5.80	260.20	266.00	Dark Gray Massive Shale		cm, em		0.00	125
0.70	266.00	266.70	Black Shale		ac, cm, em		0.00	114
2.50	266.70	269.20	Coal with Bone Streaks		ac, cm, em		0.00	23
1.00	269.20	270.20	Black Shale		ac, cm, em		0.00	114
0.90	270.20	271.10	Coal, Common Banded		ac, cm, em		0.00	21
8.80	271.10	279.90	Dark Gray Massive Shale		cm, em		0.00	125
2.60	279.90	282.50	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
31.20	282.50	313.70	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
7.60	313.70	321.30	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
2.20	321.30	323.50	Dark Gray Massive Shale		cm, em		0.00	125
0.80	323.50	324.30	Black Massive Shale		ac, cm, em		0.00	115
3.20	324.30	327.50	Coal with Bone Streaks		ac, cm, em		0.00	23
7.80	327.50	335.30	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.30	335.30	337.60	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.60	337.60	340.20	Light Gray/ Green Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	2.60	432
2.40	340.20	342.60	Light Gray Massive Sandstone with Limestone Nodules		ak, cm, em		0.00	640
15.40	342.60	358.00	Dark Gray Layered Sandy Shale w/ Limestone Nods		cm, em		0.00	423
9.90	358.00	367.90	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
0.70	367.90	368.60	Black Shale		ac, cm, em		0.00	114
0.40	368.60	369.00	Coal with Shale Streaks		ac, cm, em		0.00	28
3.30	369.00	372.30	Dark Gray Shale		cm, em		0.00	124
16.20	372.30	388.50	Dark Gray Layered Sandy Shale w/ Limestone Nods		cm, em		0.00	423
2.80	388.50	391.30	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
2.40	391.30	393.70	Shaley Nodular Limestone		ak, cs, es	Y	2.40	806
6.10	393.70	399.80	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
1.70	399.80	401.50	Shaley Nodular Limestone		ak, cs, es	Y	1.70	806
5.00	401.50	406.50	Shaley Layered Limestone		ak, cs, es	Y	5.00	802
3.00	406.50	409.50	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.70	409.50	412.20	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
15.70	412.20	427.90	Light Gray Green Shale w/ SS Stks and Limestone Nods		ak, cm, em		0.00	433
3.60	427.90	431.50	Red & Green Churned Shale w/ Limestone Nods		ak, cm, em		0.00	255
6.00	431.50	437.50	Shaley Layered Limestone		ak, cs, es	Y	6.00	802
6.40	437.50	443.90	Light Gray/Green Shale w/Limestone Nods		ak, cm, em		0.00	234
2.60	443.90	446.50	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
1.80	446.50	448.30	Shaley Nodular Limestone		ak, cs, es	Y	1.80	806
3.00	448.30	451.30	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
4.50	451.30	455.80	Nodular Limestone		ak, cs, es	Y	4.50	908
14.90	455.80	470.70	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224

9:47 AM 3/19/2008

Thickness (ft.)	Depth From (ft.)	To (ft.)	Strata	Water Bearing	Physical Properties	HR	Thickness of Hard Rock (ft.)	Ferm
AEC-2008-08								
5.10	470.70	475.80	Mosaic Limestone		ak, cs, es	Y	5.10	905
11.30	475.80	487.10	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
13.90	487.10	501.00	Shaley Layered Limestone		ak, cs, es	Y	13.90	802
3.10	501.00	504.10	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
4.60	504.10	508.70	Nodular Limestone		ak, cs, es	Y	4.60	906
8.50	508.70	517.20	Light Gray/ Green Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	8.50	432
3.90	517.20	521.10	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
5.30	521.10	526.40	Shaley Nodular Limestone		ak, cs, es	Y	5.30	806
4.40	526.40	530.80	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
1.50	530.80	532.30	Dark Gray Fireclay		cv, ev		0.00	127
0.50	532.30	532.80	Black Shale W/Coal Streaks		ac, cm, em		0.00	113
2.00	532.80	534.80	Coal with Shale Layers		ac, cm, em		0.00	27
0.90	534.80	535.70	Dark Gray Massive Shale		cm, em		0.00	125
4.10	535.70	539.80	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
7.20	539.80	547.00	Dark Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	7.20	422
8.00	547.00	555.00	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
3.60	555.00	558.60	Dark Gray Layered Sandy Shale w/ Limestone Nods		ak, cm, em	Y	3.60	422
3.90	558.60	562.50	Black Shale w/ Sandstone Streaks		ac, cm, em		0.00	313
0.90	562.50	563.40	Dark Gray Fireclay		cv, ev		0.00	127
1.00	563.40	564.40	Black Shale W/Coal Streaks		ac, cm, em		0.00	113
0.20	564.40	564.60	Coal with Bone Streaks		ac, cm, em		0.00	23
0.30	564.60	564.90	Dark Gray Massive Shale		cm, em		0.00	125
0.20	564.90	565.10	Coal with Bone Streaks		ac, cm, em		0.00	23
0.40	565.10	565.50	Black Shale W/Coal Streaks		ac, cm, em		0.00	113
1.00	565.50	566.50	Black Shale		ac, cm, em		0.00	114
6.50	566.50	573.00	Shaley Layered Limestone		ak, cs, es	Y	6.50	802
8.40	573.00	581.40	Shaley Nodular Limestone		ak, cs, es	Y	8.40	806
3.50	581.40	584.90	Shaley Layered Limestone		ak, cs, es	Y	3.50	802
6.50	584.90	591.40	Light Gray/Green Shale W/Limestone Nods		ak, cm, em		0.00	234
2.60	591.40	594.00	Dark Gray Shale w/ Limestone Nods		ak, cm, em		0.00	224
5.80	594.00	599.80	Shaley Nodular Limestone		ak, cs, es	Y	5.80	806
3.10	599.80	602.90	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
4.40	602.90	607.30	Dark Gray Massive Churned Shale w/ Limestone Nods		ak, cm, em		0.00	225
7.10	607.30	614.40	Shaley Layered Limestone		ak, cs, es	Y	7.10	802
4.30	614.40	618.70	Shaley Nodular Limestone		ak, cs, es	Y	4.30	806
3.70	618.70	622.40	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
2.40	622.40	624.80	Light Gray/Green Fireclay w/ Limestone Nods		ak, cv, ev		0.00	237
1.00	624.80	625.80	Dark Gray Fireclay		cv, ev		0.00	127
1.40	625.80	627.20	Dark Gray Shale		cm, em		0.00	124
0.50	627.20	627.70	Black Massive Shale		ac, cm, em		0.00	115
1.30	627.70	629.00	Coal, Common Banded		ac, cm, em		0.00	21
1.00	629.00	630.00	Dark Gray Massive Shale		cm, em		0.00	125
5.35	630.00	635.35	Coal, Common Banded		ac, cm, em		0.00	21
1.70	635.35	637.05	Dark Gray Shale		cm, em		0.00	124
0.50	637.05	637.55	Shaley Nodular Limestone		ak, cs, es	Y	0.50	806
4.00	637.55	641.55	Light Gray/Green Massive Sandy Shale w/ Limestone Nods		ak, cm, em		0.00	425
4.40	641.55	645.95	Light Gray/Green Massive Shale w/ Limestone Nods		ak, cm, em		0.00	235
1.00	645.95	646.95	Dark Gray Layered Sandy Shale w/ Limestone Nods		cm, em		0.00	423
1.00	646.95	647.95	Dark Gray Shale and Interbedded Sandstone		cm, em	Y	1.00	322
27.90	647.95	675.85	Dark Gray Shale w/ Sandstone Streaks		cm, em		0.00	323
Total Depth							151.30	

Acid Producing: ac
Alkaline Producing: ak
Compacible: c (v-very, m-moderate, s-slight)
Erodible: e (v-very, m-moderate, s-slight)

Total Thickness of Hard Rock Overlying Mining Unit

151.30

Thickness and Percentage of Hard and Soft Rock Overlying Mining Unit

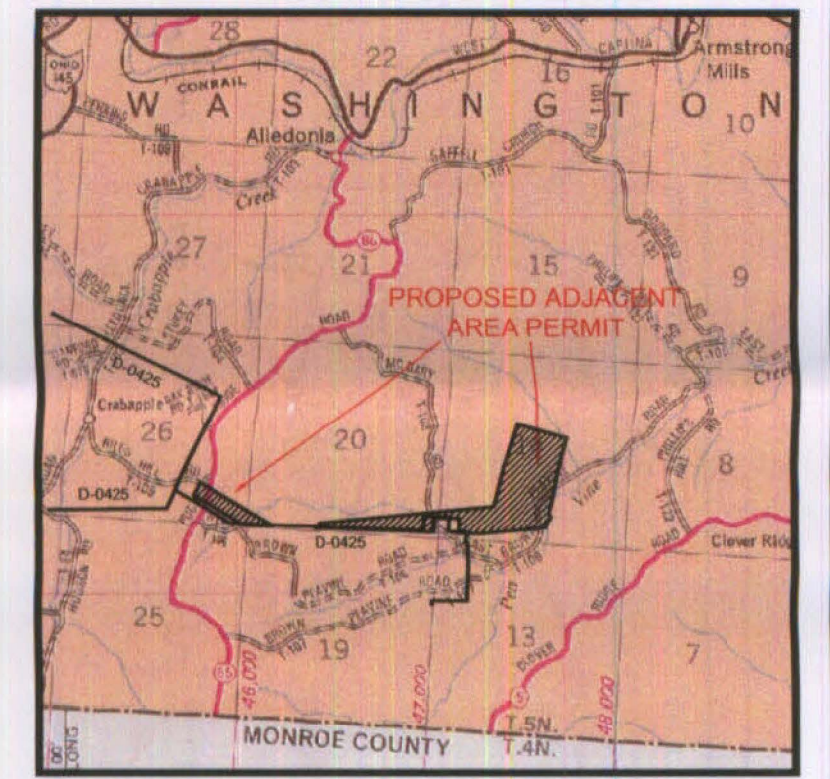
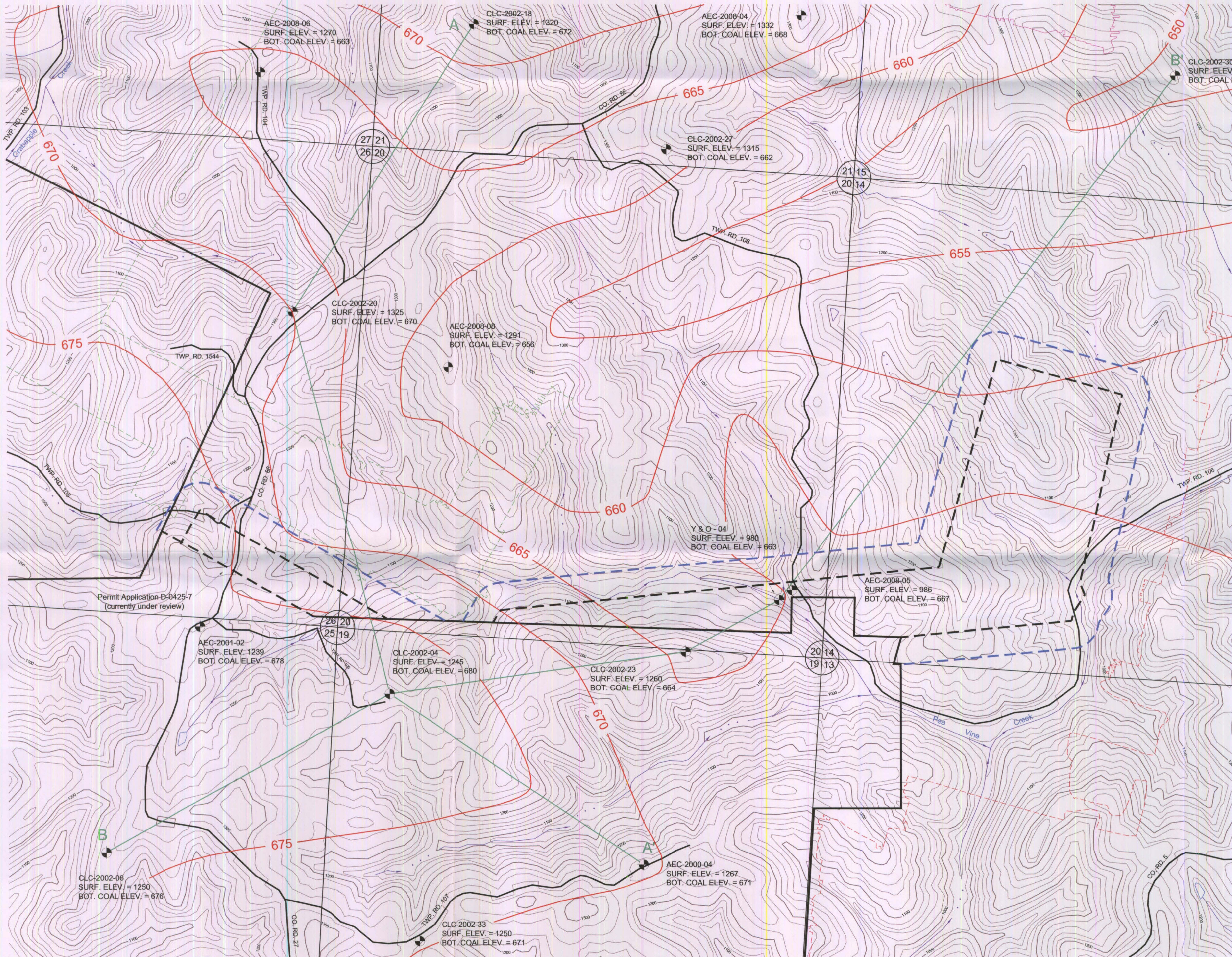
22%

	Thickness (Ft.)	Percent (%)
Hard Rock:	151.30	22%
Soft Rock:	524.55	78%
	675.85	

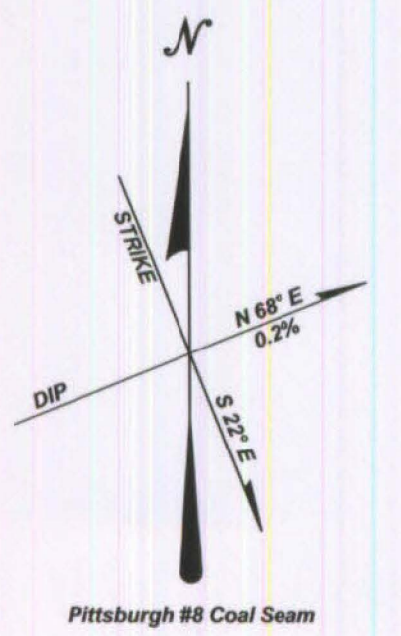
ACID/BASE ACCOUNTING for Mining Pittsburgh No. 8 Coalbed

Stratum	Neutralization Potential, tons/1000 tons as CaCO ₃	Total Sulphur %	Potential Acidity, tons /1000 tons as CaCO ₃ (Total Sul.)
Roof, 10 ft.	204.63	2.26	70.59
Coal	2.38	5.06	158.00
Bottom, 10 ft.	165.30	2.64	82.50

9:47 AM 3/19/2008



LOCATION MAP
Scale 1" = 1 Mile
Mapping From Aerial Photogrammetry
Drainage Basin: Caplin Creek
Located Within the Cameron and Armstrong Mills
USGS 7.5 Minute Quadrangles



LEGEND

- PROPOSED PERMIT AREA 160.8 ACRES
- PERMIT D-0425
- HYDROLOGIC BOUNDARY (300')
- ALLISON MINE (SEALED)
(UNDERGROUND LIMITS)
- THE OHIO VALLEY COAL CO. PERMIT D-0360
(UNDERGROUND LIMITS)
- ABANDONED MINE (POWHATAN NO. 1 MINE - B-270)
(UNDERGROUND LIMITS)
- TEST HOLES
- GEOLOGIC CROSS SECTION
- STRUCTURE CONTOUR (BASE OF PITTSBURGH #8 SEAM)
(COAL CONTOUR INTERVAL = 5')

Scale: 1" = 500'
0' 500' 1000' 1500'

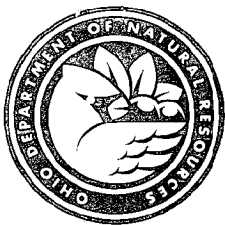
RECEIVED
JUN 26 2009
DIVISION OF MINERAL RESOURCES
COLUMBUS, OHIO
Addendum to Part 2, Item B. (4)

AMERICAN ENERGY CORPORATION
CENTURY MINE ADJACENT AREA D-0425-10
Test Hole Map

SECTIONS: 14, 20, and 26
WASHINGTON TOWNSHIP, T-5-N R-4-W, BELMONT COUNTY, OHIO.
DRAWN BY: JMC
DATE: 02/01/2008
CONTOUR INTERVAL = 20'
COMM. #02001-62-2
REVISED DATE: 03-28-08, 05-15-08, 01-30-09, 03-14-09, 06-01-09

HAMILTON
Associates, Inc.
342 High St., Box 471
Flushing, Ohio 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
e-mail: hamilton@1st.net
www.hamiltonandassoc.com

OPERATOR



Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR

SEAN D. LOGAN, DIRECTOR

Deborah F. Hoffman • Chief

Division of Water

Date: December 24, 2007

ANALYSIS OF EXISTING GROUND WATER FILE DATA

Prepared By: Bill Haiker, Hydrogeologist

Operator: American Energy Corporation

County: Belmont

Township: Washington

Section(s): 3,4,9,10,13,14,15,19,20,21,25,26,27

Number of located water well logs within 1,000 foot radius of site (copies attached): 5 Field located: 5

General description of local hydrology:

Ground water in the area is generally obtained from interbedded shale, limestone and sandstone bedrock. Well depths can range from 30 to over 150 feet with initial yields of 0 to 5 gallons per minute. Dry holes are possible.

Areas of particular concern:

Underground mining the #8 coal seam at an elevation of 685 to 645 feet MSL could adversely impact wells within the 1000-foot boundary. All wells should be located and monitored for any water quantity or quality change.

2045 Morse Road/Bldg. B-2, Columbus, Ohio 43229

ohiodnr.com



WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER
NECESSARY—
SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 402983

County BELMONT Township WASHINGTON Section of Township _____

Owner WILLIAM FIELDING Address ALLEDONIA OHIO

Location of property 5 MILES S.W. OF ALLEDONIA CO. RD. 86

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 60'
Type of screen _____ Length of screen _____
Type of pump _____
Capacity of pump _____
Depth of pump setting _____
Date of completion 4-9-75

BAILING OR PUMPING TEST (Specify one by circling)

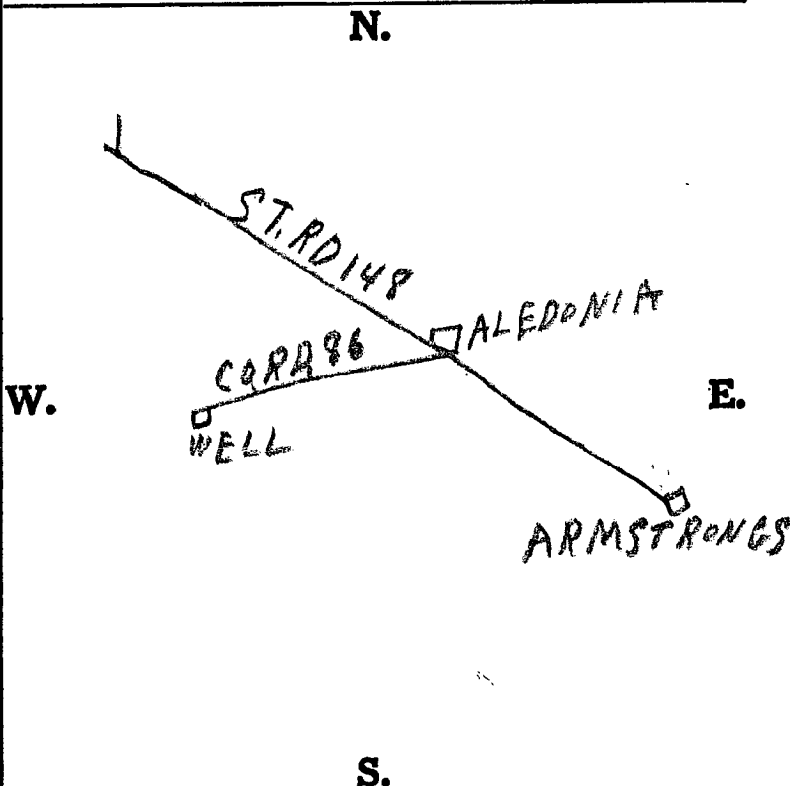
Test Rate 5 G.P.M. Duration of test _____ hrs.
Drawdown _____ ft. Date _____
Static level-depth to water _____ ft.
Quality (clear) cloudy, taste, odor) _____
Pump installed by _____

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
<u>CLAY</u>	<u>0 Feet</u>	<u>10 Ft.</u>
<u>RED SHALE</u>	<u>20</u>	<u>21</u>
<u>GREY SHALE</u>	<u>21</u>	<u>28</u>
<u>RED SHALE</u>	<u>28</u>	<u>35</u>
<u>SAND STONE</u>	<u>35</u>	<u>37</u>
<u>GREY SHALE</u>	<u>37</u>	<u>58</u>
<u>WATER AT 22'</u>		

SKETCH SHOWING LOCATION

Locate in reference to numbered
State Highways, St. Intersections, County roads, etc.



Drilling Firm KRIECHBAUM DRILLING Date 4-12-75
Address JACOBSBURG OHIO Signed Jakob Kriechbaum

*If additional space is needed to complete well log, use next consecutive numbered form.

32

WELL LOG AND DRILLING REPORT

ORIGINAL

W3

PLEASE USE PENCIL
OR TYPEWRITER

State of Ohio
DEPARTMENT OF NATURAL RESOURCES

No 356333

DO NOT USE INK

Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

County Belmont Township Washington Section of Township 26

Owner Essex Perkins Address _____

Location of property on 86 between Aladonia & P455R

CONSTRUCTION DETAILS

Casing diameter 9 Length of casing 21

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion 11/25/68

BAILING OR PUMPING TEST

Pumping Rate 25 G.P.M. Duration of test _____ hrs.

Drawdown _____ ft. Date _____

Static level-depth to water 23 1/2 ft.

Quality (clear, cloudy, taste, odor) Clear

Pump installed by _____

WELL LOG*

Formations
Sandstone, shale, limestone,
gravel and clay

From

To

0 Feet

4 Ft.

4

64

SKETCH SHOWING LOCATION

Locate in reference to numbered
State Highways, St. Intersections, County roads, etc.

N.

1485

W.

E.

S.

1565

See reverse side for instructions

Drilling Firm

Date

Address

Signed

*If additional space is needed to complete well log, use next consecutive numbered form.

CR 86

33

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER
NECESSARY—
SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 402985

County BELMONT Township WASHINGTON Section of Township _____
Owner KENNETH PERKINS Address ALLEDONIA OHIO
Location of property 5 MILES S.W. OF ALLEDONIA

CONSTRUCTION DETAILS

Casing diameter 9" Length of casing 251
Type of screen _____ Length of screen _____
Type of pump _____
Capacity of pump _____
Depth of pump setting _____
Date of completion 5-2-75

BAILING OR PUMPING TEST (Specify one by circling)

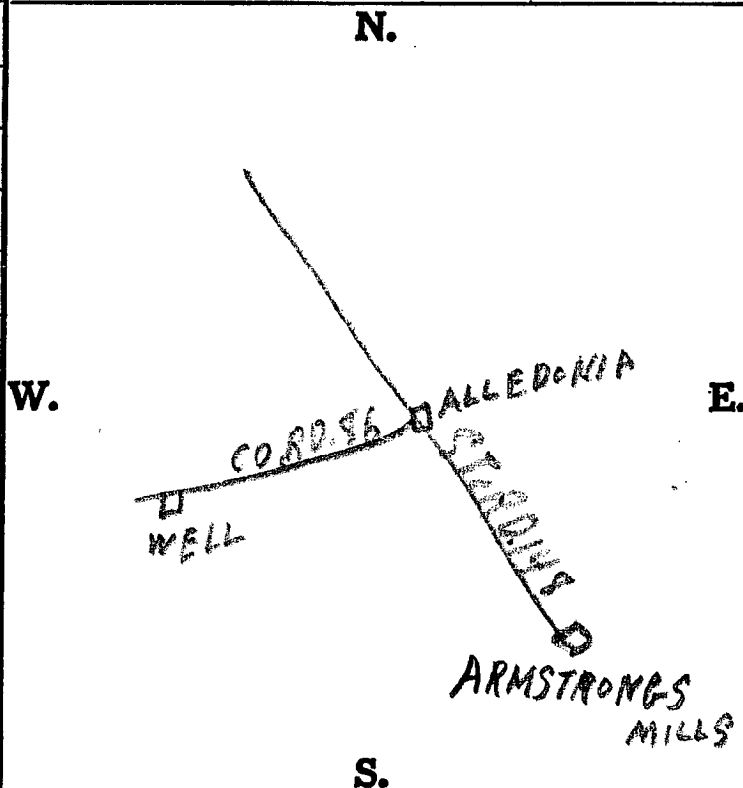
Test Rate 2 G.P.M. Duration of test _____ hrs.
Drawdown _____ ft. Date _____
Static level-depth to water _____ ft.
Quality (clear cloudy, taste, odor) _____
Pump installed by _____

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
<u>CLAY</u>	<u>0 Feet</u>	<u>2 Ft.</u>
<u>SANDSTONE</u>	<u>2</u>	<u>4</u>
<u>RED CLAY</u>	<u>4</u>	<u>20</u>
<u>SANDSTONE</u>	<u>20</u>	<u>23</u>
<u>GREY SHALE</u>	<u>23</u>	<u>40</u>
<u>SANDSTONE</u>	<u>40</u>	<u>43</u>
<u>SHALE</u>	<u>43</u>	<u>60</u>
<u>SANDSTONE</u>	<u>60</u>	<u>72</u>
<u>DARK SHALE</u>	<u>72</u>	<u>84</u>
<u>SANDSTONE</u>	<u>84</u>	<u>86</u>
<u>DARK SHALE</u>	<u>86</u>	<u>90</u>
<u>SANDSTONE</u>	<u>90</u>	<u>92</u>

SKETCH SHOWING LOCATION

Locate in reference to numbered
State Highways, St. Intersections, County roads, etc.



Drilling Firm KRIEGBAUM
Address TACOBURG OHIO

Date 5-5-75
Signed Jacob Kriebaum

*If additional space is needed to complete well log, use next consecutive numbered form.

(30)

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER
NECESSARY—
SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 402984

121-407

County BELMONT Township WASHINGTON Section of Township _____

Owner ARNOLD WILES Address ALEDONIA

Location of property 5 MILES S.W. OF ALEDONIA

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 27'
Type of screen _____ Length of screen _____
Type of pump _____
Capacity of pump _____
Depth of pump setting _____
Date of completion 4-23-75

BAILING OR PUMPING TEST (Specify one by circling)

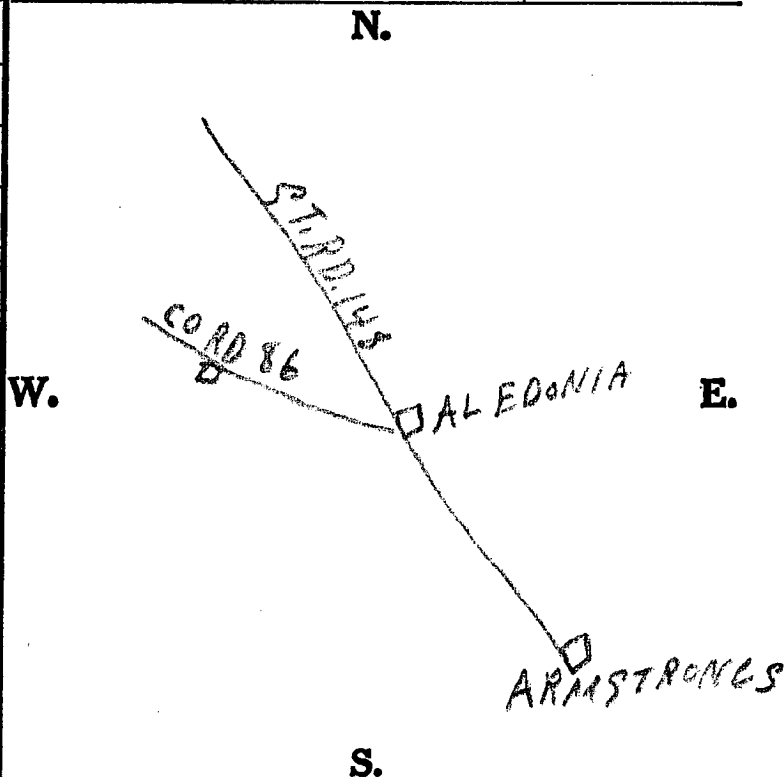
Test Rate 2 G.P.M. Duration of test _____ hrs.
Drawdown _____ ft. Date _____
Static level-depth to water _____ ft.
Quality (clear) cloudy, taste, odor) _____
Pump installed by _____

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
<u>CLAY</u>	<u>0 Feet</u>	<u>8 Ft.</u>
<u>ED CLAY</u>	<u>8</u>	<u>14</u>
<u>DARK CLAY</u>	<u>14</u>	<u>20</u>
<u>SANDSTONE</u>	<u>20</u>	<u>22</u>
<u>GREY SHALE</u>	<u>22</u>	<u>33</u>
<u>LIMESTONE</u>	<u>33</u>	<u>35</u>
<u>GREY SHALE</u>	<u>35</u>	<u>75</u>
<u>WATER AT 45'</u>		

SKETCH SHOWING LOCATION

Locate in reference to numbered
State Highways, St. Intersections, County roads, etc.



Drilling Firm KRIECHBAUM DRILLING

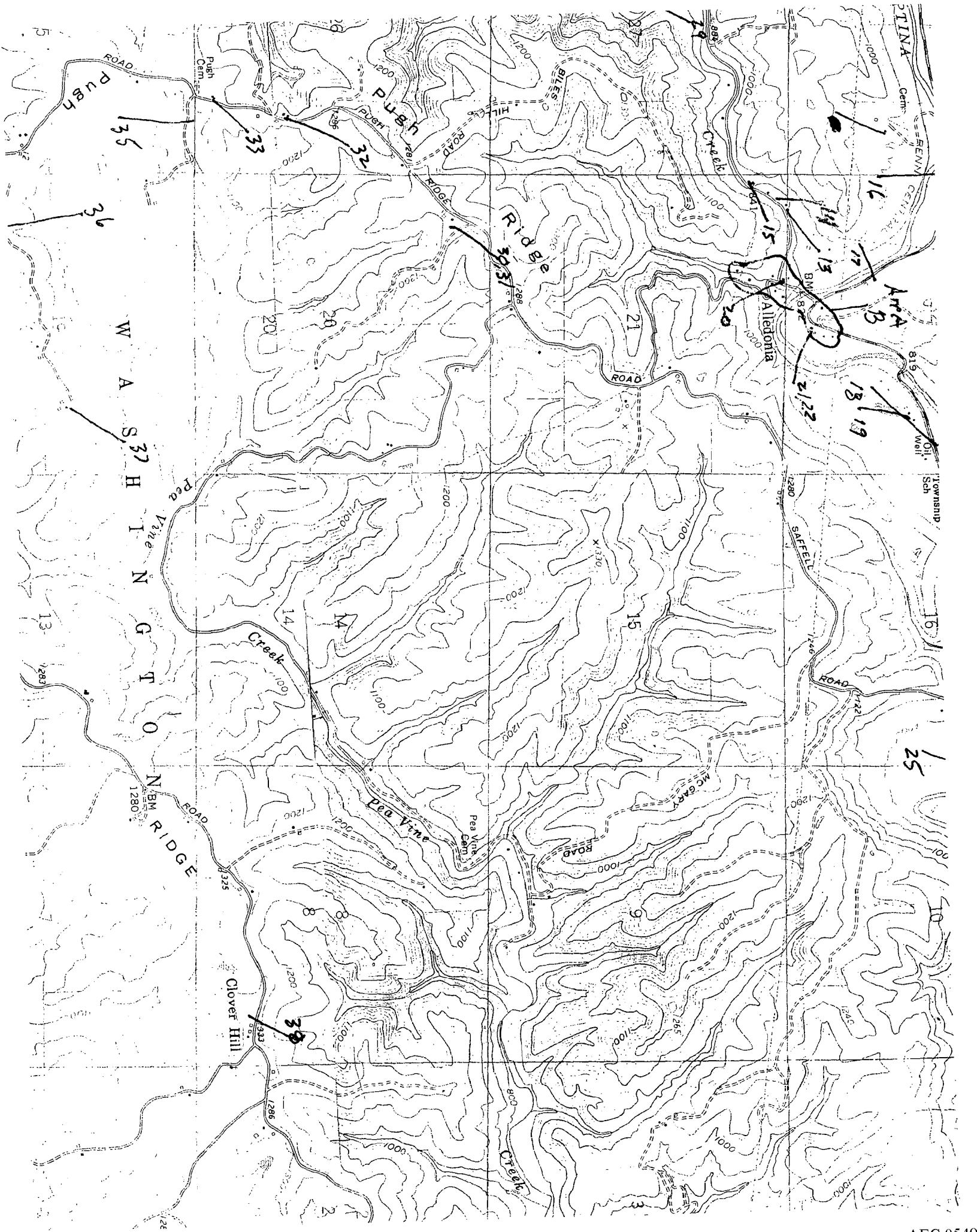
Address JACOBSBURG OHIO

Date 4-2-75

Signed LaVerne Kriechbaum

*If additional space is needed to complete well log, use next consecutive numbered form.

(25)



**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

Page 1

HYDROLOGIC INVENTORY

Applicant's Name American Energy Corp.

Pea Vine Mains & Gates D-0425-10

1	I.D. No. of Sampling Site from Hydrology Map	W-44.00			W-438		
2	State Plane X-Y Coordinates	X 2,432,341 Y 685,361			X 2,432,801 Y 684,632		
3	Surface Elevation (ft msl)	981'			965'		
4	Depth of Well Below Land Surface (feet)*	60'			27.5'		
5	SWL of Well Below Land Surface (ft) *	18.7'	17.4'	14.2'	12.4'	11.6'	9.8'
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	--			--		
7	Date Measured/Sampled**	09-10-07	12-11-07	02-18-08	09-20-07	12-11-07	02-18-08
8	pH (Standard Units)	7.63	7.76	7.71	8.35	8.28	8.76
9	Total Acidity (mg/l CaCO ₃)	<0.16	<0.16	3.5	<0.16	<0.16	<0.16
10	Total Alkalinity (mg/l CaCO ₃) ¹	320	330	340	460	380	440
11	Total Iron (mg/l)	<0.01	0.01	0.02	0.04	0.17	0.05
12	Total Manganese (mg/l)	<0.002	<0.002	<0.002	0.20	0.021	0.013
13	Total Aluminum (mg/l)	0.13	<0.04	<0.04	0.05	<0.04	<0.04
14	Total Suspended Solids (mg/l)	<0.87	0.87	<0.87	<0.87	<0.87	<0.87
15	Total Hardness (mg/l as CaCO ₃)	<5.0	<5.0	10	50	20	40
16	Total Sulfates (mg/l)	30	35	42	11	6.4	5.6
17	Specific Conductivity (umhos/cm at 25° C)***	780	760	850	1000	830	970
18	Total Dissolved Solids (mg/l)***	--	--	--	--	--	--
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	--			--		
20	High (H), Low (L), or Intermediate (I)	L	I	H	L	I	H
21	Date of Last Precipitation	09-08-07	12-01-07	02-17-08	09-12-07	12-01-07	02-17-08
22	Aquifer/Zone I.D. for Ground Water *	C			C		
23	Known Uses	DOMESTIC			DOMESTIC		
24	Lab ID Number	0709194	0712160	0802189	0709310	0712161	0802190
25	Name of Owner	R. & M. Reger			G. Macko		

* Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

ND / Denotes NOT DETECTED

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

Page 2

HYDROLOGIC INVENTORY

Applicant's Name American Energy Corp.

Pea Vine Mains & Gates D-0425-10

1	I.D. No. of Sampling Site from Hydrology Map	D10-4			D10-5		
2	State Plane X-Y Coordinates	X 2,429,581 Y 685,640			X 2,431,881 Y 685,580		
3	Surface Elevation (ft msl)	1020			980'		
4	Depth of Well Below Land Surface (feet)*	--			--		
5	SWL of Well Below Land Surface (ft) *	--			--		
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	No Flow	0.66 cfs	2.0 cfs	0.00008 CFS	0.395 cfs	9.74 cfs
7	Date Measured/Sampled**	"NS"	01-14-08	03-03-08	09-17-07	01-09-08	03-03-08
8	pH (Standard Units)	09-25-07	7.66	7.76	7.55	8.05	7.80
9	Total Acidity (mg/l CaCO ₃)		1.9	1.0	9.6	023	0.91
10	Total Alkalinity (mg/l CaCO ₃) ¹		71	41	180	110	44
11	Total Iron (mg/l)		0.29	3.6	0.06	0.19	2.6
12	Total Manganese (mg/l)		0.001	0.190	0.010	<0.002	0.057
13	Total Aluminum (mg/l)		0.43	4.4	0.29	0.10	3.7
14	Total Suspended Solids (mg/l)		<0.87	110	<0.87	<0.87	61
15	Total Hardness (mg/l as CaCO ₃)		90	70	210	140	70
16	Total Sulfates (mg/l)		24	22	45	35	30
17	Specific Conductivity (umhos/cm at 25° C)***		220	150	480	320	160
18	Total Dissolved Solids (mg/l)***		--	--	--	--	--
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	Intermittent			Perennial		
20	High (H), Low (L), or Intermediate (I)	L	I	H	L	I	H
21	Date of Last Precipitation	09-12-07	01-14-08	02-27-08	09-12-07	01-07-08	02-27-08
22	Aquifer/Zone I.D. for Ground Water *	--			--		
23	Known Uses	NONE			None		
24	Lab ID Number	--	0801294	0803020	0709227	0801199	0803025
25	Name of Owner	SEE MAP			SEE MAP		

Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

ND / Denotes NOT DETECTED

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

Page 3

HYDROLOGIC INVENTORY

Applicant's Name American Energy Corp.

Pea Vine Mains & Gates D-0425-10

1	I.D. No. of Sampling Site from Hydrology Map	D10-7			D10-8		
2	State Plane X-Y Coordinates	X 2,434,997 Y 685,684			X 2,436,184 Y 686,777		
3	Surface Elevation (ft msl)	935'			915'		
4	Depth of Well Below Land Surface (feet)*	--			--		
5	SWL of Well Below Land Surface (ft) *	--			--		
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	No Flow	0.044 cfs	2.99 cfs	0.00008 cfs	1.59 cfs	3.5 cfs
7	Date Measured/Sampled**	"NS"	12-06-07	03-19-08	"NS"	01-09-08	03-24-08
8	pH (Standard Units)	09-20-07	7.4	7.93	10-02-07	7.76	8.15
9	Total Acidity (mg/l CaCO ₃)		1.9	0.69		<0.16	0.93
10	Total Alkalinity (mg/l CaCO ₃) ¹		91	40		97	72
11	Total Iron (mg/l)		0.02	0.34		0.19	0.12
12	Total Manganese (mg/l)		<0.002	<0.002		<0.002	<0.002
13	Total Aluminum (mg/l)		< 0.04	0.50		0.19	<0.04
14	Total Suspended Solids (mg/l)		<0.87	<0.87		<0.87	<0.87
15	Total Hardness (mg/l as CaCO ₃)		110	60		120	90
16	Total Sulfates (mg/l)		40	21		38	30
17	Specific Conductivity (umhos/cm at 25° C)***		280	150		300	24
18	Total Dissolved Solids (mg/l)***		--	--		--	--
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	Intermittent			Intermittent		
20	High (H), Low (L), or Intermediate (I)	L	I	H	L	I	H
21	Date of Last Precipitation	09-12-07	12-04-07	03-19-08	09-29-07	01-07-08	03-19-08
22	Aquifer/Zone I.D. for Ground Water*	--			--		
23	Known Uses	None			None		
24	Lab ID Number		0712097	0803316		0801195	0803354
25	Name of Owner	SEE MAP			SEE MAP		

* Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

ND / Denotes NOT DETECTED

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

Page 4

HYDROLOGIC INVENTORY

Applicant's Name American Energy Corp.

Pea Vine Mains & Gates D-0425-10

1	I.D. No. of Sampling Site from Hydrology Map	D10-8E			D10-8F		
2	State Plane X-Y Coordinates	X 2,435,731 Y 687,984					
3	Surface Elevation (ft msl)	960			935'		
4	Depth of Well Below Land Surface (feet)*	--			--		
5	SWL of Well Below Land Surface (ft) *	--			--		
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	No Flow	1.059 cfs	0.006 cfs	No Flow	0.009 cs	0.2 cfs
7	Date Measured/Sampled**	"NS"	01-09-08	03-24-08	"NS"	01-09-08	03-24-08
8	pH (Standard Units)	10-03-07	7.76	8.06	10-08-807	7.87	8.14
9	Total Acidity (mg/l CaCO ₃)		<0.16	1.5		0.89	0.96
10	Total Alkalinity (mg/l CaCO ₃) ¹		97	110		100	88
11	Total Iron (mg/l)		0.19	0.06		0.34	0.26
12	Total Manganese (mg/l)		<0.002	<0.002		<0.002	<0.002
13	Total Aluminum (mg/l)		0.19	<0.04		0.60	0.44
14	Total Suspended Solids (mg/l)		<0.87	<0.87		<0.87	<0.87
15	Total Hardness (mg/l as CaCO ₃)		120	120		140	100
16	Total Sulfates (mg/l)		38	39		39	34
17	Specific Conductivity (umhos/cm at 25° C)***		300	310		320	270
18	Total Dissolved Solids (mg/l)***		--	--		--	--
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	Intermittent			Intermittent		
20	High (H), Low (L), or Intermediate (I)	L	I	H	L	I	H
21	Date of Last Precipitation	10-01-07	01-06-08	03-19-08	10-01-07	01-07-08	03-19-08
22	Aquifer/Zone I.D. for Ground Water *	--			--		
23	Known Uses	None			None		
24	Lab ID Number		0801197	0803356		0801195	0803355
25	Name of Owner	SEE MAP			SEE MAP		

Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

ND / Denotes NOT DETECTED

**OHIO DEPARTMENT OF NATURAL RESOURCE
DIVISION OF MINERAL RESOURCES MANAGEMENT**

Page 5

HYDROLOGIC INVENTORY

Applicant's Name American Energy Corp.

Pea Vine Mains & Gates D-0425-10

1	I.D. No. of Sampling Site from Hydrology Map	D10-18			D10-19		
2	State Plane X-Y Coordinates	X 2,435,245 Y 684,486			X 2,432,776 Y 684,817		
3	Surface Elevation (ft msl)	935'			870'		
4	Depth of Well Below Land Surface (feet)*	--			--		
5	SWL of Well Below Land Surface (ft) *	--			--		
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	No Flow	0.076 cfs	0.23 cfs	No Flow DRY	0.01 cfs	1.64 cfs
7	Date Measured/Sampled**	"NS"	12-06-07	03-27-08	"NS"	12-11-07	03-03-08
8	pH (Standard Units)	09-21-07	7.8	8.05	09-17-07	7.55	7.84
9	Total Acidity (mg/l CaCO ₃)	DRY	2.6	0.73		2.0	0.82
10	Total Alkalinity (mg/l CaCO ₃) ¹		120	96		61	38
11	Total Iron (mg/l)		0.13	0.20		0.69	1.8
12	Total Manganese (mg/l)		<0.002	<0.002		<0.002	0.010
13	Total Aluminum (mg/l)		0.11	0.29		1.6	3.8
14	Total Suspended Solids (mg/l)		<0.87	<0.87		<0.87	23
15	Total Hardness (mg/l as CaCO ₃)		140	170		70	60
16	Total Sulfates (mg/l)		47	31		33	19
17	Specific Conductivity (umhos/cm at 25° C)***		360	300		210	140
18	Total Dissolved Solids (mg/l)***		--	--		--	--
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	Intermittent			Intermittent		
20	High (H), Low (L), or Intermediate (I)	L	I	H	L	I	H
21	Date of Last Precipitation	09-12-07	12-05-07	03-19-08	09-12-07	12-01-07	02-27-08
22	Aquifer/Zone I.D. for Ground Water *	--			--		
23	Known Uses	None			None		
24	Lab ID Number	--	0712096	0803466	--	0712166	0803038
25	Name of Owner	SEE MAP			SEE MAP		

* Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

ND / Denotes NOT DETECTED

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

Page 6

HYDROLOGIC INVENTORY

Applicant's Name American Energy Corp.

Pea Vine Mains & Gates D-0425-10

1	I.D. No. of Sampling Site, from Hydrology Map	D10-23			D10-24		
2	State Plane X-Y Coordinates	X 2,428,905 Y 685,502			X 2,427,217 Y 685,541		
3	Surface Elevation (ft msl)	1035			1080		
4	Depth of Well Below Land Surface (feet)*	--			--		
5	SWL of Well Below Land Surface (ft)*	--			--		
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	0.0003 cfs	0.18 cfs	2.18 cfs	No Flow/Dry	0.14 cfs	2.0 cfs
7	Date Measured/Sampled**	09-25-07	01-14-08	03-03-08	"NS"	01-14-08	03-03-08
8	pH (Standard Units)	7.55	8.20	7.57	09-25-07	7.92	7.47
9	Total Acidity (mg/l CaCO ₃)	7.2	2.5	0.82		2.1	1.1
10	Total Alkalinity (mg/l CaCO ₃) ¹	190	120	32		94	47
11	Total Iron (mg/l)	0.43	0.04	0.76		0.41	8.7
12	Total Manganese (mg/l)	0.020	<0.002	0.012		0.015	0.270
13	Total Aluminum (mg/l)	0.27	<0.04	1.3		0.66	10
14	Total Suspended Solids (mg/l)	2.0	<0.87	8.7		<0.87	300
15	Total Hardness (mg/l as CaCO ₃)	220	130	60		110	80
16	Total Sulfates (mg/l)	48	31	20		25	20
17	Specific Conductivity (umhos/cm at 25° C)***	520	370	130		250	150
18	Total Dissolved Solids (mg/l)***	--	--	--		--	--
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	Perennial			Intermittent		
20	High (H), Low (L), or Intermediate (I)	L	I	H	L	I	H
21	Date of Last Precipitation	09-12-07	01-14-08	02-27-08	09-12-07	01-14-08	02-27-08
22	Aquifer/Zone I.D. for Ground Water*	--			--		
23	Known Uses	None			None		
24	Lab ID Number	0709379	0801292	0803018	--	08011290	0803015
25	Name of Owner	SEE MAP			SEE MAP		

* Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

ND / Denotes NOT DETECTED

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

Page 7

HYDROLOGIC INVENTORY

Applicant's Name American Energy Corp.

Pea Vine Mains & Gates D-0425-10

1	I.D. No. of Sampling Site from Hydrology Map	U10-6			U10-17B		
2	State Plane X-Y Coordinates	X 2,432,597 Y 686,338			X 2,425,593 Y 685,898		
3	Surface Elevation (ft msl)	1060'			1130		
4	Depth of Well Below Land Surface (feet)*	--			--		
5	SWL of Well Below Land Surface (ft)*	--			--		
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	No Flow	0.02 cfs	0.75 cfs	0.001 cfs	0.106 cfs	0.087 cfs
7	Date Measured/Sampled**	"NS"	12-11-07	03-03-08	09-18-07	01-02-08	03-25-08
8	pH (Standard Units)	09-18-07	7.63	7.40	7.95	8.34	7.96
9	Total Acidity (mg/l CaCO ₃)	DRY	1.4	0.88	3.0	1.5	0.86
10	Total Alkalinity (mg/l CaCO ₃) ¹		91	44	230	160	140
11	Total Iron (mg/l)		0.36	1.4	6.2	0.07	0.26
12	Total Manganese (mg/l)		<0.002	0.016	0.240	<0.002	0.004
13	Total Aluminum (mg/l)		0.88	2.3	5.7	<0.04	0.28
14	Total Suspended Solids (mg/l)		<0.87	30	230	<0.87	3.3
15	Total Hardness (mg/l as CaCO ₃)		120	70	290	190	160
16	Total Sulfates (mg/l)		35	23	49	46	42
17	Specific Conductivity (umhos/cm at 25° C)***		260	160	580	490	450
18	Total Dissolved Solids (mg/l)***		--	--	--	--	--
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	Intermittent			Intermittent		
20	High (H), Low (L), or Intermediate (I)	L	I	H	L	I	H
21	Date of Last Precipitation	09-12-07	12-11-07	02-27-08	09-12-07	01-01-08	03-19-08
22	Aquifer/Zone I.D. for Ground Water *	--			--		
23	Known Uses	None			None		
24	Lab ID Number		0712163	0803024	0709262	0801019	0803394
25	Name of Owner	SEE MAP			SEE MAP		

Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

Note: For each sample, provide data for either item 16 or item 17.

ND / Denotes NOT DETECTED

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

Page 8

HYDROLOGIC INVENTORY

Applicant's Name American Energy Corp.

Pea Vine Mains & Gates D-0425-10

1	I.D. No. of Sampling Site from Hydrology Map	U10-19					
2	State Plane X-Y Coordinates	X 2,433,041 Y 685,097					
3	Surface Elevation (ft msl)	1005'					
4	Depth of Well Below Land Surface (feet)*	--					
5	SWL of Well Below Land Surface (ft) *	--					
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	No Flow DRY	0.008 cfs	0.39 cfs			
7	Date Measured/Sampled**	"NS"	12-11-07	03-03-08			
8	pH (Standard Units)	09-17-07	7.47	7.83			
9	Total Acidity (mg/l CaCO ₃)		3.1	1.0			
10	Total Alkalinity (mg/l CaCO ₃) ¹		72	48			
11	Total Iron (mg/l)		0.88	1.4			
12	Total Manganese (mg/l)		<0.002	0.011			
13	Total Aluminum (mg/l)		1.4	2.5			
14	Total Suspended Solids (mg/l)		15	6.7			
15	Total Hardness (mg/l as CaCO ₃)		100	70			
16	Total Sulfates (mg/l)		42	23			
17	Specific Conductivity (umhos/cm at 25° C)***		250	160			
18	Total Dissolved Solids (mg/l)***		--	--			
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	Intermittent					
20	High (H), Low (L), or Intermediate (I)	L	I	H			
21	Date of Last Precipitation	09-12-07	12-01-07	02-27-08			
22	Aquifer/Zone I.D. for Ground Water *	--					
23	Known Uses	None					
24	Lab ID Number		0712167	0803022			
25	Name of Owner	SEE MAP					

Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

Note: For each sample, provide data for either item 16 or item 17.

ND / Denotes NOT DETECTED

- D. (3) Based on the data listed on Hydrologic Inventory, and other information submitted with this application, identify the seasonal variations in water quality and quantity for the streams identified in Part 2, D (2).

E. **HYDROLOGIC DETERMINATION - Permit, Shadow Area, and Adjacent Area**

Based on the information submitted in response to items B, C and D in this part of the permit application, submit an addendum describing the probable hydrologic consequences of this proposed underground mining operation on the hydrologic regime of the proposed permit area, shadow area and adjacent area. The description shall include findings on each of the following items:

- (1) The consequences of the proposed operation on the contents of total suspended and dissolved solids, total iron, total manganese, acidity and pH;
- (2) Whether adverse impacts may occur to the hydrologic balance; and
- (3) The impact the proposed operation will have on:
 - (a) Sediment yield from the disturbed area
 - (b) Flooding and stream flow alteration or diminution
 - (c) Ground water and surface water availability

F. **ALTERNATIVE WATER SUPPLY INFORMATION - Permit, Shadow Area and Adjacent Area**

- (1) Based on the response in Part 2, item E, submit an addendum identifying the extent to which the proposed coal mining activities may proximately result in contamination, diminution or interruption of an underground or surface source of water within the proposed permit area, shadow area and adjacent area that is used for domestic, agricultural, industrial or other legitimate use.

See addendum to Part 2, Page 17, Item F (1 & 2) in original Permit D-0425

- (2) If contamination, diminution or interruption may result, submit an addendum identifying the alternative sources of water supply that could be developed to replace the existing sources including information on water availability and suitability of alternative sources for existing pre-mining uses and post-mining land use.

See addendum to Part 2, Page 17, Item F (1 & 2) in original Permit D-0425

Addendum to Part 2, Item E

1.

The underground mining will utilize the room and pillar method to establish the mains, so surface water will not be affected as no subsidence is expected. Ground water supplies within the aquifer that the mining is being conducted may see a temporary increase in dissolved and suspended solids, iron, and manganese during the initial mining processes. Any water in the mine will be pumped out and treated so that water will meet effluent limitations prior to leaving the mining operation.

2.

There will be no adverse impacts to the hydrologic balance. Streams in the permit area will not be affected as there will be no surface disturbance. There are no ground water sources developed within the aquifer zone associated with the #8 Pittsburgh coal within the area. Other aquifers zones above and below zone #8 Pittsburgh coal will not be affected.

There are no legitimately used supplies within this proposed mining operation's shadow area, however, sites W-44.00, W-438, WL-2, WL-3, and DS-6.00 are within the hydrologic review area and there is potential for these sites to be affected by the proposed operation. See the submitted Hydrologic Inventory for more information.

No oil or gas wells are within the vicinity of the proposed mining operations. The proposed mining will connect with mine workings under approved permit D-0425-1 and will be a continuation of this mining operation, as such, it will come within close proximity in certain locations. Special care will be taken to avoid breaching the sealed abandoned underground mine, shown as the "Allison" mine on the application map.

3.

a. Sediment yield in the surface water will remain the same, as no surface impact will occur.

b. Stream flow will neither diminish or be altered as a result of the proposed mining operations. Should large volumes of water be encountered in the proposed underground mine, the water will be pumped out and treated within sediment ponds before discharging from the mining operation.

c. Ground and surface water availability will be unaffected as the aquifer associated with the #8 Pittsburgh coal to be mined is unused. No other effects are predicted to result from the proposed mining operation.

G. LAND USE INFORMATION - Permit Area N/A

- (1) Describe the uses of the land within the proposed permit area existing at the time of the filing of this permit application and provide a map which delineates the area of each land use.
- (2) Was the land use described in item G(1) above changed within five years before the anticipated date of beginning this proposed mining operation? ☐ Yes, ☐ No. If "yes," submit an addendum describing the historic use of the land.
- (3) Analyze the capability of the land within the proposed permit area before any mining to support a variety of uses, giving consideration to soil and foundation characteristics, topography, vegetative cover and hydrology of the proposed permit area.
- (4) Analyze the productivity of the land within the proposed permit area before any mining to include average yields obtained under high level of management.
- (5) Is any land within the proposed permit area classified as prime farmland? ☐ Yes, ☐ No.
- (6) Submit an addendum describing the use of the land within the permit area, including the creation of permanent water impoundments, that is proposed to be made of the land following reclamation, including information regarding the utility and capacity of the reclaimed land to support a variety of alternative uses.
- (7) Are there existing land use classifications under local law of the proposed permit area? ☐ Yes, ☐ No. If "yes," describe the land use classification and submit as an addendum to the permit application, the comments of the governmental agency that would have to initiate, implement, approve or authorize the proposed use of the land following reclamation. If "no," describe the sources of information on which the determination was made.

- G. (8) Submit Surface Owner Comments from the legal or equitable owner of record of the surface of the proposed permit area concerning the proposed land use.
- (9) Describe the consideration that has been given to making all of the proposed coal mining activities consistent with surface owner plans and applicable state and local land use plans and programs.
- (10) Describe how the proposed land use is to be achieved and the necessary support activities that may be needed to achieve the proposed land use.
- (11) Is the post-mining land use to be different from the premining land use? ___ Yes, ___ No. If "yes," submit Land Use Change Notification.
- (12) Has the proposed permit area been previously mined? ___ Yes, ___ No. If "yes," provide the following information, if available.
- (a) Type of mining method _____
 - (b) Coal seam mined _____
 - (c) Non-coal mineral mined _____
 - (d) Extent of mining (acres) _____
 - (e) Approximate dates _____
 - (f) Land use preceding mining _____

H. PRIME FARMLAND INVESTIGATION - Permit Area N/A

- (1) Does the proposed permit area include any land that is prime farmland, taking into consideration the negative determinations listed in paragraph (L) (2) of rule 1501:13-4-13 of the Administrative Code? ___ Yes, ___ No.
- (2) If the response to item H.(1) is "yes," submit PFL Restoration Plan.
- (3) If the response to item H.(1) is "no," submit Negative PFL Determination.

I. FISH AND WILDLIFE PLAN N/A

Describe the fish and wildlife resources for this permit area and adjacent area in accordance with paragraph (P) (1) (a-b) of rule 1501:13-4-05 of the Administrative Code.

PART 3 RECLAMATION AND OPERATIONS PLAN

A. GENERAL REQUIREMENTS - Permit Area (Items A (1) and A (2) - Permit and Underground Workings)

- (1) Submit an addendum describing the type and method of coal mining procedures for this application. Explain how these procedures will maximize the use and conservation of the coal resources. **See addendum to Part 3, Item A(1)**
- (2) Indicate the anticipated annual and total production of coal from this proposed operation.
Annual 706,026 Tons Total 706,026 Tons
- (3) Will this operation be combined with surface coal mining activities to the extent that contemporaneous reclamation of areas disturbed by surface mining will be delayed or such that the underground workings will be within 500 feet of the surface mining activities? Yes, X No. If "yes," submit Variance for Delay in Contemporaneous Reclamation.
- (4) Are experimental mining practices to be employed in the proposed mining operations? Yes, X No. If "yes," submit as an addendum to the permit application, the description, maps and plans required by paragraph (B) of rule 1501:13-4-12 of the Administrative Code.
- (5) Are mountaintop removal mining practices to be employed in the proposed mining operations? Yes, Yes No. If "yes," submit as an addendum to the permit application the information required by paragraph (C) of rule 1501:13-4-12 of the Administrative Code. **N/A**
- (6) Are the natural pre-mining slopes within the permit area in excess of twenty (20) degrees? Yes, Yes No. If "yes," submit an addendum demonstrating compliance with the steep slope mining provisions of paragraph (D) of rule 1501:13-4-12 and 1501:13-13-05 of the Administrative Code. **N/A**
- (7) Is augering-highwall mining proposed within the permit area? Yes, Yes No. If "yes," submit Auger-Highwall Mining. **N/A**
- (8) Are variances from approximate original contour to be employed for the proposed underground mining surface operations? Yes, Yes No. If "yes," submit an addendum to the permit application demonstrating compliance with paragraph (E) and/or (K) of rule 1501:13-4-12 of the Administrative Code. **N/A**

Addendum to Part 3, Item A(1)
American Energy Corporation

The proposed mining acreage will be used for the development of mains and gate entries prior to submitting a permit application for longwall mining. The proposed underground permit area will be mined utilizing the conventional method of mining the entries and leaving pillars for support. This method of mining will allow the coal seam to be depleted to the extent that future mining of the seam would not be practical, thereby, maximizing the use and conservation of the coal resource.

- A. (9) Will access to the underground workings be gained through a drift entry? ____ Yes, X No. If "yes," provide as an addendum sufficient information to determine the location of the entry relative to the highest elevation of the coal reserve. Is the drift entry located so as to eliminate the potential for a gravity discharge? ____ Yes, ____ No. If "no," the applicant must demonstrate that the coal seam is not acid or iron producing. Provide an analysis of the strata immediately above and below the coal, and the coal seam itself, sufficient to demonstrate that the water quality from the entry will meet effluent limitations without treatment.
- (10) For entries to underground workings other than drift entries, provide as an addendum sufficient information to determine the location of the entry relative to the coal reserve. Are the entries located so as to eliminate the potential for a gravity discharge? X Yes, ____ No. If "no," provide the following demonstration:
- (a) The gravity discharge will meet effluent limitations without treatment, or
 - (b) The water will be treated to meet effluent limitations and provisions will be made for consistent maintenance of the treatment facility throughout the anticipated period of gravity discharge
- (11) Will the permanent entry seals be designed to withstand the maximum anticipated hydraulic head when the operations are abandoned? ____ Yes, ____ No. If "yes," submit the appropriate information demonstrating that this will be accomplished. If "no," provide a typical plan for the seals to be used to close the mine entries pursuant to applicable state and federal regulations. **N/A**
- (12) Submit an addendum describing the construction, modification, maintenance, and removal (unless to be retained for post-mining land use), including the proposed engineering techniques and major equipment to be used, of the following facilities:
- (a) Dams, embankments and other impoundments. Do any of the plans for water, sediment or slurry impoundments meet the requirements of 30 CFR 77.216? ____ Yes, ____ No. If "yes," submit as an addendum a plan that addresses each of the requirements in 30 CFR 77.216-2
N/A
 - (b) Overburden and topsoil handling and storage areas and structures
N/A

Addendum to Part 3, Item A (10)
American Energy Corporation
Century Mine, Permit D-0425-10

The Pittsburgh #8 Coal Seam has a general southeast dip at about 0.5%. The base of the #8 coal seam ranges in elevation from 675 feet to 655 feet within the proposed permit limits.

The lowest surface elevation within the proposed permit limits is 920 feet. The slope entrance for Century Mine is located approximately 2.48 miles northwest of this proposed permit area at an elevation of 954.9 feet. The highest coal elevation within the D-0425 mine complex is 800 feet. Based on this data, gravity discharge cannot occur.

- A. (12) (c) Coal removal, handling, storage, cleaning and transportation areas and structures; including, but not limited to, preparation plants, beltlines, tipples, rail sidings and primary roads. For roads, conveyors and rail systems, submit an addendum describing the information required pursuant to paragraph (L) of rule 1501:13-4-14 and 1501:13-10-01 of the Administrative Code. **N/A**
- (d) Spoil removal, handling, storage, transportation and disposal areas and structures, including underground development waste or excess spoil disposal sites. If underground development waste or excess spoil is to be generated, submit an addendum describing the information required by paragraphs (O) and (P) of rule 1501:13-4-14 and 1501:13-9-07 of the Administrative Code.
The refuse from this application area will be disposed on the D-0425-2 permit area. There is sufficient room to allow disposal at current production rates through the year 2010.
- (e) Mine facilities such as portal/shaft development, boreholes, de-gas holes, vents, office or shop buildings and maintenance facilities
See original Permit D-0425
- (f) Water and air pollution control facilities
See original Permit D-0425
- (13) Provide an estimate of the cost per acre to reclaim the permit area.
_____ per acre **N/A**
- (14) Will the proposed operation include any of the following:
- (a) Disposal of coal mine waste from a wash plant, tipples, or other source? ____ Yes, **X** No. If "yes," submit Coal Waste Plan and, if applicable, the information required by paragraph (H) of rule 1501:13-4-14 of the Administrative Code.
- (b) Disposal of fly ash or other noncoal wastes? ____ Yes, **X** No. If "yes," submit an addendum which addresses the disposal material and a detailed disposal plan, pursuant to paragraph (E) of rule 1501:13-9-09 of the Administrative Code.
- (c) Return of slurry or other mine waste or material into the abandoned underground workings? ____ Yes, **X** No. If "yes," comply with provisions contained in paragraph (N) of rule 1501:13-4-14 and paragraph (Q) of 1501:13-9-04 of the Administrative Code, and submit copies of the required MSHA approvals as an addendum.
- (15) Will the proposed operation include beneficial use of coal combustion by-products (CCBs) pursuant to Section 1513.02 of the Ohio Revised Code? ____ Yes, **X** No. If "yes," submit CCB Plan.

B. EXISTING STRUCTURES - Permit Area **N/A**

- (1) Are any existing structures proposed to be used in connection with or to facilitate the coal mining and reclamation operation? ____ Yes, ____ No. If "yes," submit as an addendum to the permit application a description of each structure. The description shall include the information required by paragraph (B)(1) of rule 1501:13-4-14 of the Administrative Code.
- B. (2) Are any existing structures proposed to be modified or reconstructed for use in connection with or to facilitate the coal mining and reclamation operation? ____ Yes, ____ No. If "yes," submit as an addendum to the permit application, a

ADDENDUM TO PART 3, ITEM A(12)(d)
AMERICAN ENERGY CORPORATION
CENTURY MINE
PERMIT D-0425-10

Current capacity for 5,649,747 tons of coal waste is available at the Coarse Coal Refuse site on Permit D-0425-2. D-0425-10 application will generate 282,410 tons of coal waste. The D-0425-10 figures were calculated using 40% reject, 3 to 1 coarse to fines, (75% coarse coal).

D-425-10 Permit Pea Vine Mains and Gates

ROM Coal Tons	Clean Tons 60.00%	Total Reject	Refuse To Site
706,026	423,616	282,410	211,808

Current capacity for 11,528,976 tons of slurry is available at the Ohio Valley Coal Company No. 2 Dam. Permit D-0425-10 application will generate 70,602 tons of slurry fines (3:1 coarse to fine ratio). The No. 2 Dam has the capacity to contain the D-0425-10 slurry fines.

D-425-10 Permit Pea Vine Mains and Gates

ROM Coal Tons	Clean Tons 60.00%	Total Reject	Slurry 3:1
706,026	423,616	282,410	70,602

compliance plan for each structure. The plan shall include the information required by paragraph (B)(2) of rule 1501:13-4-14 of the Administrative Code.

C. **BLASTING - Permit Area** N/A

Will blasting occur within 25 feet of the surface during shaft and portal development or other on-site development? ___ Yes, ___ No. If "yes," submit Blasting - Underground Operations.

D. **RECLAMATION PLAN - GENERAL REQUIREMENTS - Permit Area (Item D (12)- Permit, Shadow and Adjacent Area)**

- (1) Provide a detailed timetable for the completion of backfilling and grading for each mining year.

N/A

- (2) Provide a detailed timetable for the completion of resoiling for each mining year.

N/A

- (3) Provide a detailed timetable for the completion of planting for each mining year.

N/A

- (4) Describe the plan for backfilling, compacting and grading of the disturbed permit area, including the disposal of all mine generated debris.

N/A

- (5) Submit an addendum describing the plan for the removal, storage, redistribution and stabilization of topsoil, subsoil, or approved alternative resoiling material to meet the requirements of rule 1501:13-9-03 of the Administrative Code. If an alternative resoiling material is to be used, submit ARM Plan.

N/A

- (6) Provide the following information for the revegetation plan: N/A

- (a) Schedule for revegetation to include planting of temporary vegetation.

- D. (6) (b) List the species and amounts per acre of seeds and seedlings to be used.
- (c) Describe the methods to be used in planting and seeding.
- (d) Describe the mulching techniques.
- (7) Describe the soil testing plan for evaluation of the results of topsoil handling and reclamation procedures related to revegetation.
N/A
- (8) Submit an addendum describing the measures to be employed to handle and place acid or toxic-forming materials in accordance with paragraph (J) of rule 1501:13-9-04 and paragraph (J) of rule 1501:13-9-14 of the Administrative Code.
N/A
- (9) Describe the measures, including appropriate cross-sections and maps, to be used to plug, case or manage mine openings or bore holes other than those entries utilized to gain access to the underground workings, pursuant to rule 1501:13-9-02 of the Administrative Code.
N/A
- (10) Is the reclamation plan consistent with local physical, environmental, and climatological conditions? ___ Yes, ___ No.
N/A
- (11) Identify any other applicable air and water quality laws and regulations and health and safety standards and describe the steps to be taken to comply with each.
N/A
- (12) Submit an addendum describing the plan for minimizing to the extent possible and using the best technology currently available disturbances and adverse impacts of the operation on fish and wildlife and related environmental values, including compliance with the Endangered Species Act, and achieving enhancement of such resources where practical for the permit, shadow and adjacent areas.

See addendum to Part 3, Page 24, Item D(12) in original Permit D-0425

E. RECLAMATION PLAN-PROTECTION OF HYDROLOGIC BALANCE - Permit and Adjacent Area

Submit an addendum describing the measures to be taken during and after the proposed mining operations to:

- (1) Minimize disturbance to the hydrologic balance, including quality and quantity, within the permit and adjacent areas and to prevent material damage outside the permit area;
- (2) Protect the rights of present users of surface and ground water;
- (3) Avoid acid or toxic drainage.

See addendum to Part 3, Page 25, Item E (1, 2, 3) in original Permit D-0425

F. GROUND WATER AND SURFACE WATER MONITORING PLAN - Permit and Shadow Area

Based upon the probable hydrologic consequences determination and analysis of all baseline hydrologic, geologic and other information submitted in this application, address the following items in accordance with paragraph (F) of rule 1501:13-4-14 and paragraph (N) of rule 1501:13-9-04 of the Administrative Code.

- (1) In addition to the quality and quantity parameters required for quarterly monitoring and NPDES monitoring, will any other parameters be monitored? ___ Yes, X No. If "yes," indicate the parameter(s) and the site(s) where such monitoring will occur.
- (2) Do you propose or anticipate the need for a variation in the required monitoring frequency for ground and surface water sites and monthly monitoring for NPDES? ___ Yes, X No. If "yes," describe the variation in frequency and the monitoring sites to be affected.
- (3) Describe the plan for collection, recording, and reporting of all surface and ground water quality and quantity monitoring data, including data collected for the NPDES program.

See addendum to Part 3, Page 25, Item F (3) in D-0425-3

G. DIVERSIONS AND DRAINAGE CONTROLS - Permit Area

- (1) Will the proposed coal mining activities result in diversions of overland flow away from the disturbed areas? ___ Yes, ___ No. If "yes," describe, including maps and cross sections, the diversion to be constructed to achieve compliance with paragraph (I) of rule 1501:13-4-14 of the Administrative Code.

N/A

- (2) Will the proposed coal mining activities result in the diversion of intermittent or perennial streams within the proposed permit area? ___ Yes, ___ No. If "yes," describe, including maps and cross sections, the diversions to be constructed to achieve compliance with paragraph (I) of rule 1501:13-4-14 of the Administrative Code.

N/A

- (3) Will the proposed coal mining activities result in construction of diversions to direct runoff through a sediment pond or a series of sediment ponds? ___ Yes, ___ No. If "yes," submit an addendum to describe, including maps and cross sections, the diversions to be constructed to achieve compliance with paragraph (I) of rule 1501:13-4-14 of the Administrative Code.

N/A

- (4) Indicate which of the following are proposed to be constructed within the proposed permit area and submit as an addendum the detailed design plans for each structure in accordance with paragraph (H) of rule 1501:13-4-14 and 1501:13-9-04 of the Administrative Code.

___ Sedimentation pond(s) (submit Pond-Impoundment Plan)

___ Water impoundment(s) (submit Pond-Impoundment Plan)

___ Other (specify) _____

N/A

- (5) Submit an addendum describing the plan for the control of water drainage into, through, and out of the proposed permit area. If applicable, submit as an addendum any request for variances pursuant to paragraphs (B) and (E) of rule 1501:13-9-04 of the Administrative Code.

N/A

- (6) Describe the treatment, when required, of ground and surface water drainage from the area to be disturbed by the proposed coal mining activities

N/A

H. PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES - Permit and Planned Subsidence Area

Will the proposed coal mining activities adversely affect any public parks and places listed on the National Register or Historic Places? ___ Yes, X No. If "yes," submit an addendum describing the measures to minimize or prevent these impacts.

I. MINING NEAR OR THROUGH A PUBLIC ROAD - Permit Area

If the response to Part 1, item D(6) of the permit application is "yes," submit an addendum describing the measures to be used to ensure that the interests of the public and landowners are protected.

N/A

J. SUBSIDENCE CONTROL SURVEY - Shadow Area

- (1) Is this a full coal recovery operation? ___ Yes, X No. If "yes," complete Subsidence Control Survey and following items J (2) and (3).
- (2) Does the shadow area contain any of the structures or facilities listed in 1501:13-12-03(J)(1-3)? ___ Yes, ___ No. If "yes," complete Subsidence Control - Protection of Specific Structures, and specifically identify the structures or facilities on the application map. **N/A**
- (3) Are any aquifers or bodies of water that serve as a significant water source for any public water supply system present in the shadow area? ___ Yes, ___ No. If "yes," complete Subsidence Control - Protection of Specific Structures, and specifically identify the areas on the application map. **N/A**

K. SUBSIDENCE CONTROL PLAN - Shadow Area

- (1) Submit an addendum that describes the method of coal removal, and indicates the size, sequence, and timing of the development of the underground workings.

See Addendum to Part 3, Item K(1) & Timing, Structure Contour, Coal Parcel Map

- (2) Utilizing the application map, specifically indicate areas where planned subsidence mining methods (i.e. longwall or pillar extraction) will be used.

N/A, non-subsiding area, main and gate entries

- (3) Utilizing the application map, specifically indicate room-and-pillar mining areas where subsidence will be prevented or minimized.

See application map

- K. (4) Submit as an addendum, for those areas mapped as room-and-pillar mining, the following information: **See addendum to Page 28, Part 3, K(4)**
- (a) The maximum and average overburden thickness.
 - (b) The projected maximum extraction ratios for mains, submains, and butt sections, as well as the existing ranges of values for the same areas.
 - (c) Projected maximum width of entries and cross cuts throughout the mine, as well as the existing ranges of values for the same areas.
 - (d) The center spacing for entries and cross cuts.
 - (e) Minimum pillar dimensions for mains, submains, and butt sections, as well as the existing ranges of values for these areas.
 - (f) The barrier pillar width between butt sections, as well as the existing ranges of values for the same areas.
 - (g) The engineering properties of the clay/shale, or other soft rock material in the roof and floor of the mine.
 - (h) Measures to be taken on the surface to prevent damage or lessening of the value or reasonably foreseeable use of the surface, if any.
 - (i) The minimum pillar safety factor, for protected structures, based upon coal strength and load.
 - (j) Methods and calculations used to determine the safety factor.
- (5) Submit as an addendum for those areas mapped as full coal recovery mining, the following information: **N/A**
- (a) For each method to be employed (i.e. longwall or pillar extraction), provide the following:
 - i) Rate and direction of dip for the coal seam.
 - ii) Dimensions of panels or butt sections.
 - iii) Thickness of coal to be extracted (mining height).
 - iv) Maximum angle of draw.
 - v) Maximum anticipated subsidence.
 - vi) Width of barrier pillars or chain pillars between sections or panels.
 - vii) The maximum extraction ratio within a pillaring section.
 - (b) The anticipated effects of planned subsidence upon the land and water resources identified in the subsidence control survey and survey of ground and surface water resources.
 - (c) The measures to be taken to mitigate the anticipated effects of planned subsidence to the land and water resources.
 - (d) The anticipated effects of planned subsidence upon the structures identified in the subsidence control survey.

Addendum to Part 3, Page 28 K. (4) (a-j)
American Energy Corporation, Century Mine

- (a) Maximum overburden = 670 feet; Average overburden = 513 feet**
- (b) Projection A (gate entries) = 44%; Projection B (gate entries) = 40%;**
Projection C (main entries) = 38%; Projections D and E (main entries) = 36.9%
Projections F and G (main entries) = 36.1%
- (c) All entries driven will be 18 feet wide**
- (d) All entries will be driven on 75 foot centers; cross cuts will be driven on 100 to 150 foot centers**
- (e) Minimum pillar dimensions for gate entries = 57 feet x 82 feet;**
Minimum pillar dimensions for main entries = 57 feet x 132 feet
- (f) Barrier pillar width between main entries and future longwall panel = 510 feet**
- (g) See Table 13 in Addendum to Part 3, K(4)**
- (h) In order to prevent damage to the surface, pillars with safety factors greater than 2.0 will be utilized, and no pillar extraction will take place.**
- (i) The minimum pillar safety factor for Projection A (gate entries) = 3.36; Projection B (gates) = 4.04; Projections C, D, and F (main entries) = 4.04; and Projections E and G (main entries) = 4.14.**
- (j) The Analysis of Retreat Mine Pillar Stability (ARMPS) program, developed by the National Institute for Occupational Safety and Health (NIOSH), was used to determine pillar safety factors.**

See Addendum to Part 3, K(4), Pillar Stability Analysis, ODNR Application D-0425-10.

TABLE 13
 COMPRESSIVE STRENGTH
 PITTSBURGH (NO. 8) FLOOR

ROCK CORE COMPRESSIVE STRENGTH TEST RESULTS			
OHIO VALLEY COAL COMPANY			
Boring N91-3			
Sample No.	Depth (ft.)	Unit Wt. (pcf)	Compressive Strength (psi)
1	580.6 - 580.9	165.7	9444
2	582.3 - 582.6	163.2	3930
3	585.1 - 585.4	168.9	9453
4	587.2 - 587.5	162.9	3767
5	589.3 - 589.6	168.9	2995
Boring N91-4			
Sample No.	Depth (ft.)	Unit Wt. (pcf)	Compressive Strength (psi)
1	596.2 - 596.5	183.2	10272
2	600.4 - 600.7	165.1	6535
3	602.9 - 603.2	163.9	5034
4	604.2-604.5	158.3	9643
Boring N91-6			
Sample No.	Depth (ft.)	Unit Wt. (pcf)	Compressive Strength (psi)
1	453.6 - 453.9	165.9	5288
2	454.0 - 454.3	170.9	12590
3	455.0 - 455.3	161.6	9918
4	455.3 - 455.6	163.0	9752
5	456.8 - 457.1	161.0	6903
6	457.3 - 457.6	163.3	6220
7	458.0 - 458.3	161.4	7586
8	464.3 - 464.7	160.6	5699

LITHOLOGIC
DESCRIPTION

Calcareous Shale
 Claystone
 Shale
 Shale
 Shale

Claystone*
 Shale
 Shale
 Shale

Shale
 Calcareous Shale
 Calcareous Shale
 Calcareous Shale
 Shale
 Shale
 Shale
 Shale

* Strength and density too high for claystone, may have had limestone nodule in prepared sample.

**Addendum to Part 3, Item K
American Energy Corporation
Century Mine, D-0425-10**

A two hundred foot (200') barrier will be maintained between the underground mining proposed in this application and the sealed portion of the "Allison Mine" underground workings.

American Energy Corporation - Century Mine
WILLIAM J. SIPLIVY, P.E., INC.

Mining Engineer and Geologist

8 April 2008

Mr. Fred Blumling
Environmental Engineer
American Energy Corporation
43521 Mayhugh Hill Road
Beallsville, Ohio 43716

RE: Pillar Stability Analysis, ODNR Application D-0425-10

Dear Mr. Blumling:

At your request, a coal pillar stability analysis was made for development mining proposed in Application D-0425-10 for American Energy Corporation's Century mine. The mining plan considered consists of gate and main entry development shown in the seven possible projections on Figure 1. All entries are to be driven 18 feet wide, maximum, on 75 foot centers. Cross-cuts are to be driven 18 feet wide, maximum, on 100 to 150 foot centers, turned 60 or 90 degrees, or a combination of both (see Figure 1). The mining height is 6 feet. Overburden thickness ranges from 200 to 650 feet. The maximum thickness of 650 feet was used in the stability analysis.

Gate Entries

There are two gate entry projections being considered (Projections A and B). Both are three entry systems. Projection A would be driven on 75' x 100' centers. The extraction rate is approximately 44 percent. Projection B would be driven on 75' x 150' centers. The extraction rate is approximately 40 percent.

Main Entries

There are five main entry projections being considered (Projections C thru G). Projection C is a 4 entry system driven on 75' x 150' centers with 60 degree cross-cuts. The extraction rate is 38 percent. Projections D and E are 5 entry systems driven on 75' x 150' centers, with cross-cuts turned at 60 and 90 degrees, respectfully. The extraction rate is 36.9 percent. Projections F and G are 6 entry systems driven on 75' x 150' centers with cross-cuts turned at 60 and 90 degrees, respectfully. The extraction rate is 36.1 percent.

Stability Analysis

The stability analysis was made using the NIOSH, ARMPS 5.1.18 program. A compressive strength of 900 psi was used for the Pittsburgh No. 8 coalbed, per the recommendation of MSHA, District 3, Morgantown, West Virginia.

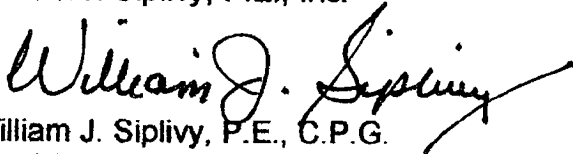
The calculated ARMPS stability factors are summarized in Table 1. The results are as follows: Projection A, 3.36; Projections B, C, D and F, 4.04; and Projections E and G, 4.14 using the above cited parameters. Calculation sheets are attached.

Stable pillars are expected for the seven mining projections analyzed due to the stability factor being greater than 2 and a mining extraction rate, in each case, of less than 50 percent.

Please let me know if there are any questions.

Respectfully submitted,

William J. Siplivy, P.E., Inc.



William J. Siplivy, P.E., C.P.G.
President

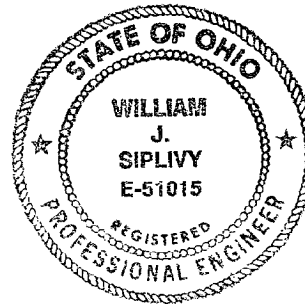
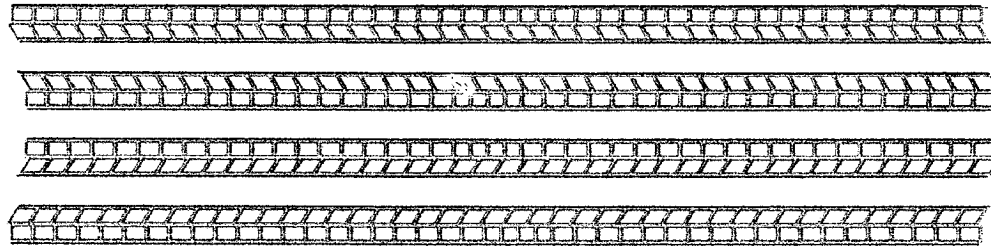
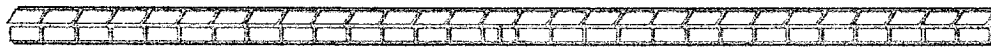


FIGURE I
PROJECTIONS A THRU G
APPLICATION: D-0425-10



PROJECTION "A" 75x100 GATES



PROJECTION "B" 75x150 GATES



PROJECTION "C" 75x150 MAINS 4 ENTRY



PROJECTION "D" 75x150 MAINS 5 ENTRY



PROJECTION "E" 75x150 MAINS 5 ENTRY



PROJECTION "F" 75x150 MAINS 6 ENTRY



PROJECTION "F" 75x150 MAINS 6 ENTRY



PROJECTION "G" 75x150 MAINS 6 ENTRY

Table 1
Pillar Stability Analyses Summary
American Energy Corporation - Century Mine
ODNR Application : D-0425-10
8 April 2008

<u>Projection</u>	<u>Mining Designation</u>	<u>Number of Entries</u>	<u>Entry Width (ft.)</u>	<u>Entry Centers (ft.)</u>	<u>Cross-cut Centers (ft.)</u>	<u>ARMPS Stability Factor</u>
A	Gates	3	18	75	100	3.36
B	Gates	3	18	75	150	4.04
C	Mains	4	18	75	150	4.04
D	Mains	5	18	75	150	4.04
E	Mains	5	18	75	150	4.14
F	Mains	6	18	75	150	4.04
G	Mains	6	18	75	150	4.14

Notes: Maximum overburden thickness 650 feet.
Refer to Figure 1 for projection schematic.

ARMPS module build: 5.0.43

Project File: C:\Documents and Settings\fbmlumling\My Documents\MyNIOSH\Projection A 75x100.ARM

Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Entry Height.....6 (ft)
 Depth of Cover.....650 (ft)
 Crosscut Angle.....60 (deg)
 Entry Width.....18 (ft)
 Number of Entries.....3
 Crosscut Spacing.....100 (ft)
 Center to Center Distance #1.....75 (ft)
 Center to Center Distance #2.....75 (ft)

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
 Unit Weight of Overburden.....162 (pcf)
 Breadth of AMZ.....127 (ft)
 AMZ set automatically

[RETREAT MINING PARAMETERS]

Loading Condition.....DEVELOPMENT

[ARMPS STABILITY FACTORS]

DEVELOPMENT.....3.36

[DATA ABOUT THE ACTIVE MINING ZONE (AMZ)]

AMZ Width.....150.0 (ft)
 AMZ Breadth.....127.0 (ft)
 AMZ Area.....19050.0 (ft)*(ft)
 Extraction Ratio Within AMZ.....0.40
 Development Load on AMZ.....1.00E+06 (tons)

TOTAL LOADINGS ON AMZ, INCLUDING TRANSFER FROM BARRIERS

LOAD	ABUTMENT	LTRANSBAR	LTRANSREM	TOTAL
CONDITION	LOAD (tons)	(tons)	(tons)	(tons)
DEVELOPMENT	0.00E+00	0.00E+00	0.00E+00	1.00E+06

R-Factor for front abutment is the percent of the total front abutment load that is applied to the AMZ.

R-Factor for side abutment is the percent of the total side abutment load that is applied to the barrier pillar (the remainder is applied to the AMZ).

LTRANSBAR is the load transferred to the AMZ from the barrier pillar between the side and active gob if the barrier's SF is less than 1.5.

LTRANSREM is the load transferred to the AMZ from the remnant barrier between the side and active gob if the remnant's SF is less than 1.5.

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)	MAXIMUM DIMENSION (ft)
1	75.00	57.00	79.22
2	75.00	57.00	79.22

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)	LOAD-BEARING CAPACITY (tons)
1	4.52E+03	4.09E+03	1.33E+06
2	4.52E+03	4.09E+03	1.33E+06

TOTAL LOAD-BEARING CAPACITY OF PILLARS WITHIN AMZ: 3.37E+06 (tons)

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

[BARRIER PILLAR PARAMETERS]
none

[STRESS ON INDIVIDUAL PILLARS WITHIN THE AMZ]

DEVELOPMENT STRESSES.....1215 (psi)

ARMPS module build: 5.0.43

Project File: C:\Documents and Settings\fbumling\My Documents\MyNIOSH\Projection B 75x100.ARM
Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Entry Height.....6 (ft)
Depth of Cover.....650 (ft)
Crosscut Angle.....60 (deg)
Entry Width.....18 (ft)
Number of Entries.....3
Crosscut Spacing.....150 (ft)
Center to Center Distance #1.....75 (ft)
Center to Center Distance #2.....75 (ft)

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
Unit Weight of Overburden.....162 (pcf)
Breadth of AMZ.....127 (ft)
AMZ set automatically

[RETREAT MINING PARAMETERS]

Loading Condition.....DEVELOPMENT

[ARMPS STABILITY FACTORS]

DEVELOPMENT.....4.04

[DATA ABOUT THE ACTIVE MINING ZONE (AMZ)]

AMZ Width.....150.0 (ft)
AMZ Breadth.....127.0 (ft)
AMZ Area.....19050.0 (ft)*(ft)
Extraction Ratio Within AMZ.....0.35
Development Load on AMZ.....1.00E+06 (tons)

TOTAL LOADINGS ON AMZ, INCLUDING TRANSFER FROM BARRIERS

LOAD	ABUTMENT	LTRANSBAR	LTRANSREM	TOTAL
CONDITION	LOAD (tons)	(tons)	(tons)	(tons)
DEVELOPMENT	0.00E+00	0.00E+00	0.00E+00	1.00E+06

R-Factor for front abutment is the percent of the total front abutment load that is applied to the AMZ.

R-Factor for side abutment is the percent of the total side abutment load that is applied to the barrier pillar (the remainder is applied to the AMZ).

LTRANSBAR is the load transferred to the AMZ from the barrier pillar between the side and active gob if the barrier's SF is less than 1.5.

LTRANSREM is the load transferred to the AMZ from the remnant barrier between the side and active gob if the remnant's SF is less than 1.5.

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)	MAXIMUM DIMENSION (ft)
1	75.00	57.00	129.22
2	75.00	57.00	129.22

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)	LOAD-BEARING CAPACITY (tons)
1	7.37E+03	4.51E+03	2.39E+06
2	7.37E+03	4.51E+03	2.39E+06

TOTAL LOAD-BEARING CAPACITY OF PILLARS WITHIN AMZ: 4.05E+06 (tons)

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

[BARRIER PILLAR PARAMETERS]
none

[STRESS ON INDIVIDUAL PILLARS WITHIN THE AMZ]

DEVELOPMENT STRESSES.....1117 (psi)

ARMPS module build: 5.0.43

Project File: C:\Documents and Settings\fbblumling\My Documents\MyNIOSH\Projection C 75x150 Main:

Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Entry Height.....6 (ft)
 Depth of Cover.....650 (ft)
 Crosscut Angle.....60 (deg)
 Entry Width.....18 (ft)
 Number of Entries.....4
 Crosscut Spacing.....150 (ft)
 Center to Center Distance #1.....75 (ft)
 Center to Center Distance #2.....75 (ft)
 Center to Center Distance #3.....75 (ft)

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
 Unit Weight of Overburden.....162 (pcf)
 Breadth of AMZ.....127 (ft)
 AMZ set automatically

[RETREAT MINING PARAMETERS]

Loading Condition.....DEVELOPMENT

[ARMPS STABILITY FACTORS]

DEVELOPMENT.....4.04

[DATA ABOUT THE ACTIVE MINING ZONE (AMZ)]

AMZ Width.....225.0 (ft)
 AMZ Breadth.....127.0 (ft)
 AMZ Area.....28575.0 (ft)*(ft)
 Extraction Ratio Within AMZ.....0.35
 Development Load on AMZ.....1.50E+06 (tons)

TOTAL LOADINGS ON AMZ, INCLUDING TRANSFER FROM BARRIERS

LOAD	ABUTMENT	LTRANSBAR	LTRANSREM	TOTAL
CONDITION	LOAD (tons)	(tons)	(tons)	(tons)
DEVELOPMENT	0.00E+00	0.00E+00	0.00E+00	1.50E+06

R-Factor for front abutment is the percent of the total front abutment load that is applied to the AMZ.

R-Factor for side abutment is the percent of the total side abutment load that is applied to the barrier pillar (the remainder is applied to the AMZ).

LTRANSBAR is the load transferred to the AMZ from the barrier pillar between the side and active gob if the barrier's SF is less than 1.5.

LTRANSREM is the load transferred to the AMZ from the remnant barrier between the side and active gob if the remnant's SF is less than 1.5.

{PILLAR PARAMETERS}

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)	MAXIMUM DIMENSION (ft)
1	75.00	57.00	129.22
2	75.00	57.00	129.22
3	75.00	57.00	129.22

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)	LOAD-BEARING CAPACITY (tons)
1	7.37E+03	4.51E+03	2.39E+06
2	7.37E+03	4.51E+03	2.39E+06
3	7.37E+03	4.51E+03	2.39E+06

TOTAL LOAD-BEARING CAPACITY OF PILLARS WITHIN AMZ: 6.08E+06 (tons)

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

{BARRIER PILLAR PARAMETERS}
none

{STRESS ON INDIVIDUAL PILLARS WITHIN THE AMZ}

DEVELOPMENT STRESSES.....1117 (psi)

ARMPS module build: 5.0.43

Project File: C:\Documents and Settings\fbblumling\My Documents\MyNIOSH\Projection D 75x150 Main:

Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Entry Height.....6 (ft)
 Depth of Cover.....650 (ft)
 Crosscut Angle.....60 (deg)
 Entry Width.....18 (ft)
 Number of Entries.....5
 Crosscut Spacing.....150 (ft)
 Center to Center Distance #1.....75 (ft)
 Center to Center Distance #2.....75 (ft)
 Center to Center Distance #3.....75 (ft)
 Center to Center Distance #4.....75 (ft)

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
 Unit Weight of Overburden.....162 (pcf)
 Breadth of AMZ.....127 (ft)
 AMZ set automatically

[RETREAT MINING PARAMETERS]

Loading Condition.....DEVELOPMENT

[ARMPS STABILITY FACTORS]

DEVELOPMENT.....4.04

[DATA ABOUT THE ACTIVE MINING ZONE (AMZ)]

AMZ Width.....300.0 (ft)
 AMZ Breadth.....127.0 (ft)
 AMZ Area.....38100.0 (ft)*(ft)
 Extraction Ratio Within AMZ.....0.35
 Development Load on AMZ.....2.01E+06 (tons)

TOTAL LOADINGS ON AMZ, INCLUDING TRANSFER FROM BARRIERS

LOAD	ABUTMENT	LTRANSBAR	LTRANSREM	TOTAL
CONDITION	LOAD (tons)	(tons)	(tons)	(tons)
DEVELOPMENT	0.00E+00	0.00E+00	0.00E+00	2.01E+06

R-Factor for front abutment is the percent of the total front abutment load that is applied to the AMZ.

R-Factor for side abutment is the percent of the total side abutment load that is applied to the barrier pillar (the remainder is applied to the AMZ).

LTRANSBAR is the load transferred to the AMZ from the barrier pillar between the side and active gob if the barrier's SF is less than 1.5.

LTRANSREM is the load transferred to the AMZ from the remnant barrier between the side and active gob if the remnant's SF is less than 1.5.

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)	MAXIMUM DIMENSION (ft)
1	75.00	57.00	129.22
2	75.00	57.00	129.22
3	75.00	57.00	129.22
4	75.00	57.00	129.22

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)	LOAD-BEARING CAPACITY (tons)
1	7.37E+03	4.51E+03	2.39E+06
2	7.37E+03	4.51E+03	2.39E+06
3	7.37E+03	4.51E+03	2.39E+06
4	7.37E+03	4.51E+03	2.39E+06

TOTAL LOAD-BEARING CAPACITY OF PILLARS WITHIN AMZ: 8.11E+06 (tons)

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

[BARRIER PILLAR PARAMETERS]
none

[STRESS ON INDIVIDUAL PILLARS WITHIN THE AMZ]

DEVELOPMENT STRESSES.....1117 (psi)

ARMPS module build: 5.0.43

Project File: C:\Documents and Settings\fbblumling\My Documents\MyNIOSH\Projection E 75x150 Main
Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Entry Height.....6 (ft)
 Depth of Cover.....650 (ft)
 Crosscut Angle.....90 (deg)
 Entry Width.....18 (ft)
 Number of Entries.....5
 Crosscut Spacing.....150 (ft)
 Center to Center Distance #1.....75 (ft)
 Center to Center Distance #2.....75 (ft)
 Center to Center Distance #3.....75 (ft)
 Center to Center Distance #4.....75 (ft)

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
 Unit Weight of Overburden.....162 (pcf)
 Breadth of AMZ.....127 (ft)
 AMZ set automatically

[RETREAT MINING PARAMETERS]

Loading Condition.....DEVELOPMENT

[ARMPS STABILITY FACTORS]

DEVELOPMENT.....4.14

[DATA ABOUT THE ACTIVE MINING ZONE (AMZ)]

AMZ Width.....300.0 (ft)
 AMZ Breadth.....127.0 (ft)
 AMZ Area.....38100.0 (ft)*(ft)
 Extraction Ratio Within AMZ.....0.33
 Development Load on AMZ.....2.01E+06 (tons)

TOTAL LOADINGS ON AMZ, INCLUDING TRANSFER FROM BARRIERS

LOAD	ABUTMENT	LTRANSBAR	LTRANSREM	TOTAL
CONDITION	LOAD (tons)	(tons)	(tons)	(tons)
DEVELOPMENT	0.00E+00	0.00E+00	0.00E+00	2.01E+06

R-Factor for front abutment is the percent of the total front abutment load that is applied to the AMZ.

R-Factor for side abutment is the percent of the total side abutment load that is applied to the barrier pillar (the remainder is applied to the AMZ).

LTRANSBAR is the load transferred to the AMZ from the barrier pillar between the side and active gob if the barrier's SF is less than 1.5.

LTRANSREM is the load transferred to the AMZ from the remnant barrier between the side and active gob if the remnant's SF is less than 1.5.

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)	MAXIMUM DIMENSION (ft)
1	75.00	57.00	132.00
2	75.00	57.00	132.00
3	75.00	57.00	132.00
4	75.00	57.00	132.00

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)	LOAD-BEARING CAPACITY (tons)
1	7.52E+03	4.53E+03	2.45E+06
2	7.52E+03	4.53E+03	2.45E+06
3	7.52E+03	4.53E+03	2.45E+06
4	7.52E+03	4.53E+03	2.45E+06

TOTAL LOAD-BEARING CAPACITY OF PILLARS WITHIN AMZ: 8.31E+06 (tons)

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

[BARRIER PILLAR PARAMETERS]

none

[STRESS ON INDIVIDUAL PILLARS WITHIN THE AMZ]

DEVELOPMENT STRESSES.....1093 (psi)

ARMPS module build: 5.0.43

Project File: C:\Documents and Settings\fbblumling\My Documents\MyNIOSH\Projection F 75x150 Mai

Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Entry Height.....6 (ft)
 Depth of Cover.....650 (ft)
 Crosscut Angle.....60 (deg)
 Entry Width.....18 (ft)
 Number of Entries.....6
 Crosscut Spacing.....150 (ft)
 Center to Center Distance #1.....75 (ft)
 Center to Center Distance #2.....75 (ft)
 Center to Center Distance #3.....75 (ft)
 Center to Center Distance #4.....75 (ft)
 Center to Center Distance #5.....75 (ft)

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
 Unit Weight of Overburden.....162 (pcf)
 Breadth of AMZ.....127 (ft)
 AMZ set automatically

[RETREAT MINING PARAMETERS]

Loading Condition.....DEVELOPMENT

[ARMPS STABILITY FACTORS]

DEVELOPMENT.....4.04

[DATA ABOUT THE ACTIVE MINING ZONE (AMZ)]

AMZ Width.....375.0 (ft)
 AMZ Breadth.....127.0 (ft)
 AMZ Area.....47625.0 (ft)*(ft)
 Extraction Ratio Within AMZ.....0.35
 Development Load on AMZ.....2.51E+06 (tons)

TOTAL LOADINGS ON AMZ, INCLUDING TRANSFER FROM BARRIERS

LOAD	ABUTMENT	LTRANSBAR	LTRANSREM	TOTAL
CONDITION	LOAD (tons)	(tons)	(tons)	(tons)
DEVELOPMENT	0.00E+00	0.00E+00	0.00E+00	2.51E+06

R-Factor for front abutment is the percent of the total front abutment load that is applied to the AMZ.

R-Factor for side abutment is the percent of the total side abutment load that is applied to the barrier pillar (the remainder is applied to the AMZ).

LTRANSBAR is the load transferred to the AMZ from the barrier pillar between the side and active gob if the barrier's SF is less than 1.5.

LTRANSREM is the load transferred to the AMZ from the remnant barrier between the side and active gob if the remnant's SF is less than 1.5.

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)	MAXIMUM DIMENSION (ft)
1	75.00	57.00	129.22
2	75.00	57.00	129.22
3	75.00	57.00	129.22
4	75.00	57.00	129.22
5	75.00	57.00	129.22

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)	LOAD-BEARING CAPACITY (tons)
1	7.37E+03	4.51E+03	2.39E+06
2	7.37E+03	4.51E+03	2.39E+06
3	7.37E+03	4.51E+03	2.39E+06
4	7.37E+03	4.51E+03	2.39E+06
5	7.37E+03	4.51E+03	2.39E+06

TOTAL LOAD-BEARING CAPACITY OF PILLARS WITHIN AMZ: 1.01E+07 (tons)

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

[BARRIER PILLAR PARAMETERS]

none

[STRESS ON INDIVIDUAL PILLARS WITHIN THE AMZ]

DEVELOPMENT STRESSES.....1117 (psi)

ARMPS module build: 5.0.43

Project File: C:\Documents and Settings\fbblumling\My Documents\MyNIOSH\Projection G 75x150 Main:
Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Entry Height.....6 (ft)
 Depth of Cover.....650 (ft)
 Crosscut Angle.....90 (deg)
 Entry Width.....18 (ft)
 Number of Entries.....6
 Crosscut Spacing.....150 (ft)
 Center to Center Distance #1.....75 (ft)
 Center to Center Distance #2.....75 (ft)
 Center to Center Distance #3.....75 (ft)
 Center to Center Distance #4.....75 (ft)
 Center to Center Distance #5.....75 (ft)

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
 Unit Weight of Overburden.....162 (pcf)
 Breadth of AMZ.....127 (ft)
 AMZ set automatically

[RETREAT MINING PARAMETERS]

Loading Condition.....DEVELOPMENT

[ARMPS STABILITY FACTORS]

DEVELOPMENT.....4.14

[DATA ABOUT THE ACTIVE MINING ZONE (AMZ)]

AMZ Width.....375.0 (ft)
 AMZ Breadth.....127.0 (ft)
 AMZ Area.....47625.0 (ft)*(ft)
 Extraction Ratio Within AMZ.....0.33
 Development Load on AMZ.....2.51E+06 (tons)

TOTAL LOADINGS ON AMZ, INCLUDING TRANSFER FROM BARRIERS

LOAD	ABUTMENT	LTRANSBAR	LTRANSREM	TOTAL
CONDITION	LOAD (tons)	(tons)	(tons)	(tons)
DEVELOPMENT	0.00E+00	0.00E+00	0.00E+00	2.51E+06

R-Factor for front abutment is the percent of the total front abutment load that is applied to the AMZ.

R-Factor for side abutment is the percent of the total side abutment load that is applied to the barrier pillar (the remainder is applied to the AMZ).

LTRANSBAR is the load transferred to the AMZ from the barrier pillar between the side and active gob if the barrier's SF is less than 1.5.

LTRANSREM is the load transferred to the AMZ from the remnant barrier between the side and active gob if the remnant's SF is less than 1.5.

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)	MAXIMUM DIMENSION (ft)
1	75.00	57.00	132.00
2	75.00	57.00	132.00
3	75.00	57.00	132.00
4	75.00	57.00	132.00
5	75.00	57.00	132.00

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)	LOAD-BEARING CAPACITY (tons)
1	7.52E+03	4.53E+03	2.45E+06
2	7.52E+03	4.53E+03	2.45E+06
3	7.52E+03	4.53E+03	2.45E+06
4	7.52E+03	4.53E+03	2.45E+06
5	7.52E+03	4.53E+03	2.45E+06

TOTAL LOAD-BEARING CAPACITY OF PILLARS WITHIN AMZ: 1.04E+07 (tons)

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

[BARRIER PILLAR PARAMETERS]
none

[STRESS ON INDIVIDUAL PILLARS WITHIN THE AMZ]

DEVELOPMENT STRESSES.....1093 (psi)

- K. (5) (e) The proposed measures to be taken to mitigate anticipated effects to structures.
- (f) The proposed measures to determine the extent of mining related damages including a presubsidence survey with an indication of the timing of the survey.
- (g) The provisions for repair and/or compensation for damages to structures.
- (h) Describe the monitoring, if any, needed to determine the commencement and degree of subsidence so that, when appropriate, other measures can be taken to prevent, reduce, or correct material damage in accordance with rule 1501:13-12-03 of the Administrative Code.
- (6) Will planned subsidence operations be conducted within the angle of draw of urbanized areas, cities, towns, communities, industrial or commercial buildings, major impoundments, or perennial streams? ___ Yes, ___ No. If "yes," describe any measures or activities that will prevent a condition or practice that could result in an imminent danger to the health or safety of the public. **N/A**
- (7) Will planned subsidence operations be conducted within the angle of draw of transmission pipelines? ___ Yes, ___ No. If "yes," describe the procedural plan to avoid the creation of a situation of imminent danger to the health and safety of the public. **N/A**

PART 4 FORMAT AND CONTENT

A. FILING OF ADDENDA

If an addendum is needed to present the information required by the items in the permit application, the addendum is to be submitted with the permit application and each page, map, plan or other document in the addendum should include the applicant's name and indicate to what item the addendum applies. For example, "Addendum to Part 3, item K(2)Zebco Coal Company."

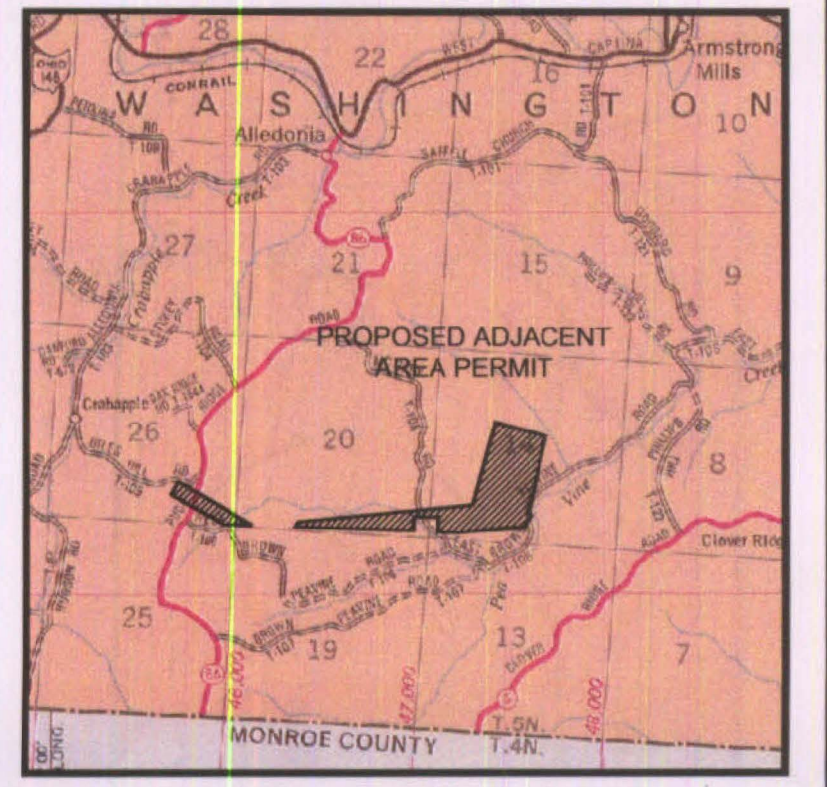
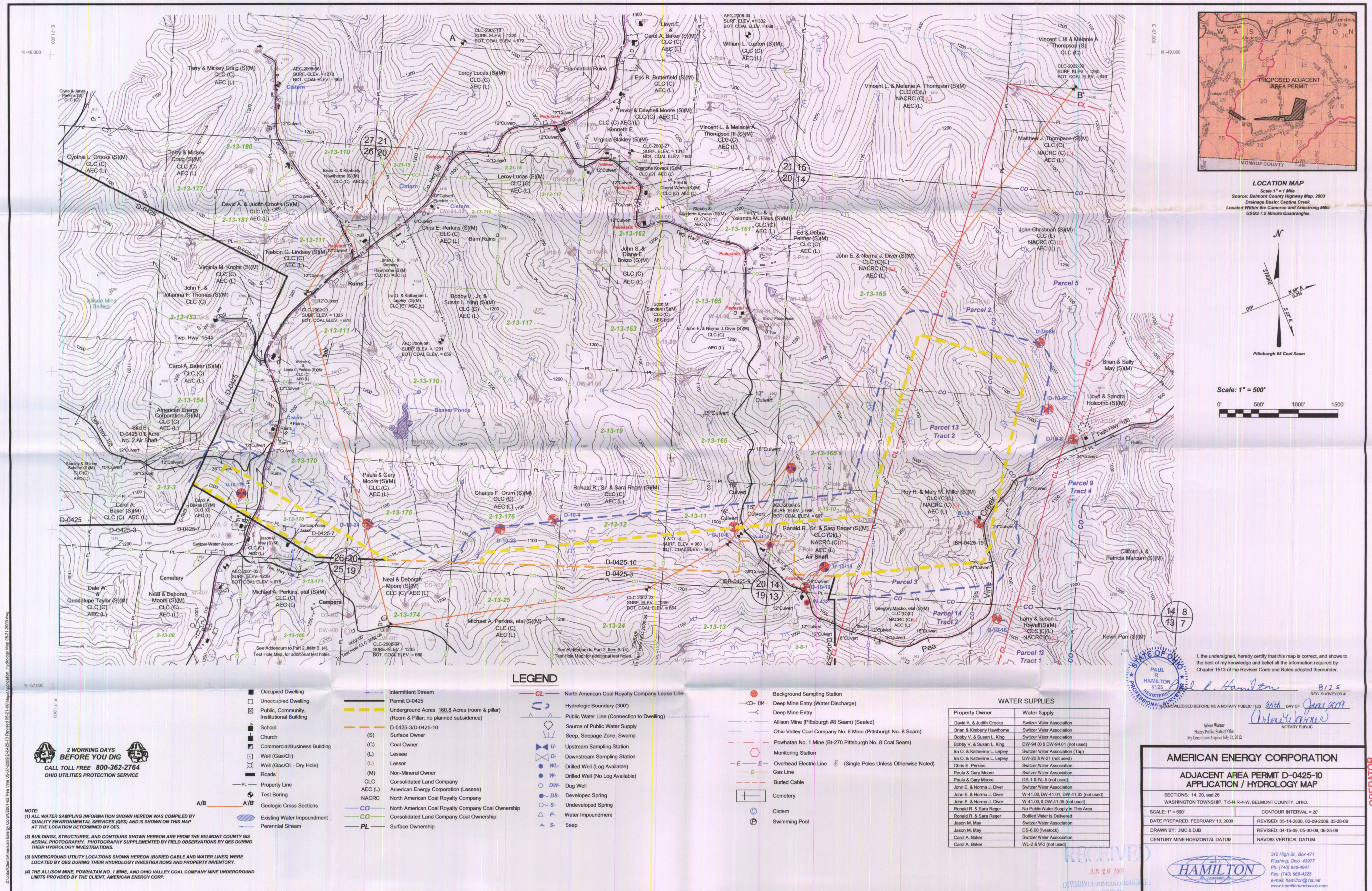
B. Provide the information requested below for all technical data submitted in the application.

Identification of Technical Data (1)	Person/Organization that Collected Data and Date	Methodology for Collecting Data	Person/Organization that Analyzed Data and Date	Methodology Used to Analyze Data
Part 2. C. (2)(3) D. (2)(3) Hydrologic Inventory	Fred Blackman Quality Environmental Services, Inc.	Grab Sample	Tradet, Inc. 8/2007, 9/2007, 10/2007, 12/2007, 1/2008	Analyze as necessary for parameters
Part 2. B. (4) Drilling Report	LJ Hughes and Sons, Inc.	Core Drill	Kim Cecil/2000, 2001	Analyze as necessary for parameters
Part 2. B. (4) Drilling Report	Kerogen Resources, Inc.	Core Drill	Kim Cecil/2002	Analyze as necessary for parameters
Part 2. B. (4) Drilling Report	West Virginia Resources, Inc.	Core Drill	Jon Murray/2008	Analyze as necessary for parameters
Part 3. K (4) Pillar Stability Analysis	William J. Siplivy	Underground Mining Plan	William J. Siplivy	NIOSH, ARMP5 5.1.18 Computer Program

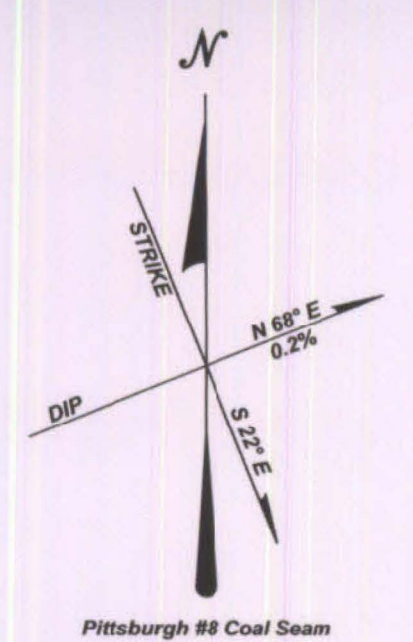
- (1) The technical data is to be identified by referencing the particular item in the application for which the data was used in preparing the response (e.g. Part 2, B(1); Hydrologic Inventory; Part 4, A).

- C. Provide the name, address, and position of officials of each private or academic research organization or governmental agency contacted in the preparation of the application for information on land uses, soils, geology, vegetation, fish and wildlife, water quantity and quality, air quality, and archeological, cultural, and historic features.

Name and Address of Official	Position of Official	Name of Agency/ Organization	Type of Information (e.g. Geology)
B. Haiker, ODNR, Div. of Water 2045 Morse Road Bldg. B-2, Columbus, Ohio 43229-6693	Hydrogeologist	ODNR, Division of Water	Hydrology
William J. Siplivy Falls Towne Centre, Suite 3 2020 Front Street Cuyahoga Falls, Ohio 44221	Geotechnical Engineer	William J. Siplivy, P.E., C.P.G.	Pillar Stability Analysis
R. Whitt P.O. Box 2019 Wheeling, WV 26003	Analyst	Tradet, Inc.	Water Sample Analysis



LOCATION MAP
Scale 1" = 1 Mile
Source: Belmont County Highway Map, 2003
Drainage Basin: Caplin Creek
Located Within the Cameron and Armstrong Mills
USGS 7.5 Minute Quadrangles



Scale: 1" = 500'
0' 500' 1000' 1500'

LEGEND

- Occupied Dwelling
- Unoccupied Dwelling
- Public, Community, Institutional Building
- School
- Church
- Commercial/Business Building
- Well (Gas/Oil)
- Well (Gas/Oil - Dry Hole)
- Roads
- Property Line
- Test Boring
- Geologic Cross Sections
- Perennial Stream
- Intermittent Stream
- Permit D-0425
- Underground Acres 160.8 Acres (room & pillar) (Room & Pillar; no planned subsidence)
- D-0425-3/D-0425-10
- Surface Owner
- Coal Owner
- Lessee
- Lessor
- Non-Mineral Owner
- Consolidated Land Company
- American Energy Corporation (Lessee)
- CLC (C)
- CLC (L)
- CLC (S)
- CLC (M)
- CLC (A)
- CLC (B)
- CLC (D)
- CLC (E)
- CLC (F)
- CLC (G)
- CLC (H)
- CLC (I)
- CLC (J)
- CLC (K)
- CLC (L)
- CLC (M)
- CLC (N)
- CLC (O)
- CLC (P)
- CLC (Q)
- CLC (R)
- CLC (S)
- CLC (T)
- CLC (U)
- CLC (V)
- CLC (W)
- CLC (X)
- CLC (Y)
- CLC (Z)
- CLC (AA)
- CLC (AB)
- CLC (AC)
- CLC (AD)
- CLC (AE)
- CLC (AF)
- CLC (AG)
- CLC (AH)
- CLC (AI)
- CLC (AJ)
- CLC (AK)
- CLC (AL)
- CLC (AM)
- CLC (AN)
- CLC (AO)
- CLC (AP)
- CLC (AQ)
- CLC (AR)
- CLC (AS)
- CLC (AT)
- CLC (AU)
- CLC (AV)
- CLC (AW)
- CLC (AX)
- CLC (AY)
- CLC (AZ)
- CLC (BA)
- CLC (BB)
- CLC (BC)
- CLC (BD)
- CLC (BE)
- CLC (BF)
- CLC (BG)
- CLC (BH)
- CLC (BI)
- CLC (BJ)
- CLC (BK)
- CLC (BL)
- CLC (BM)
- CLC (BN)
- CLC (BO)
- CLC (BP)
- CLC (BQ)
- CLC (BR)
- CLC (BS)
- CLC (BT)
- CLC (BU)
- CLC (BV)
- CLC (BW)
- CLC (BX)
- CLC (BY)
- CLC (BZ)
- CLC (CA)
- CLC (CB)
- CLC (CC)
- CLC (CD)
- CLC (CE)
- CLC (CF)
- CLC (CG)
- CLC (CH)
- CLC (CI)
- CLC (CJ)
- CLC (CK)
- CLC (CL)
- CLC (CM)
- CLC (CN)
- CLC (CO)
- CLC (CP)
- CLC (CQ)
- CLC (CR)
- CLC (CS)
- CLC (CT)
- CLC (CU)
- CLC (CV)
- CLC (CW)
- CLC (CX)
- CLC (CY)
- CLC (CZ)
- CLC (DA)
- CLC (DB)
- CLC (DC)
- CLC (DD)
- CLC (DE)
- CLC (DF)
- CLC (DG)
- CLC (DH)
- CLC (DI)
- CLC (DJ)
- CLC (DK)
- CLC (DL)
- CLC (DM)
- CLC (DN)
- CLC (DO)
- CLC (DP)
- CLC (DQ)
- CLC (DR)
- CLC (DS)
- CLC (DT)
- CLC (DU)
- CLC (DV)
- CLC (DW)
- CLC (DX)
- CLC (DY)
- CLC (DZ)
- CLC (EA)
- CLC (EB)
- CLC (EC)
- CLC (ED)
- CLC (EE)
- CLC (EF)
- CLC (EG)
- CLC (EH)
- CLC (EI)
- CLC (EJ)
- CLC (EK)
- CLC (EL)
- CLC (EM)
- CLC (EN)
- CLC (EO)
- CLC (EP)
- CLC (EQ)
- CLC (ER)
- CLC (ES)
- CLC (ET)
- CLC (EU)
- CLC (EV)
- CLC (EW)
- CLC (EX)
- CLC (EY)
- CLC (EZ)
- CLC (FA)
- CLC (FB)
- CLC (FC)
- CLC (FD)
- CLC (FE)
- CLC (FF)
- CLC (FG)
- CLC (FH)
- CLC (FI)
- CLC (FJ)
- CLC (FK)
- CLC (FL)
- CLC (FM)
- CLC (FN)
- CLC (FO)
- CLC (FP)
- CLC (FQ)
- CLC (FR)
- CLC (FS)
- CLC (FT)
- CLC (FU)
- CLC (FV)
- CLC (FW)
- CLC (FX)
- CLC (FY)
- CLC (FZ)
- CLC (GA)
- CLC (GB)
- CLC (GC)
- CLC (GD)
- CLC (GE)
- CLC (GF)
- CLC (GG)
- CLC (GH)
- CLC (GI)
- CLC (GJ)
- CLC (GK)
- CLC (GL)
- CLC (GM)
- CLC (GN)
- CLC (GO)
- CLC (GP)
- CLC (GQ)
- CLC (GR)
- CLC (GS)
- CLC (GT)
- CLC (GU)
- CLC (GV)
- CLC (GW)
- CLC (GX)
- CLC (GY)
- CLC (GZ)
- CLC (HA)
- CLC (HB)
- CLC (HC)
- CLC (HD)
- CLC (HE)
- CLC (HF)
- CLC (HG)
- CLC (HH)
- CLC (HI)
- CLC (HJ)
- CLC (HK)
- CLC (HL)
- CLC (HM)
- CLC (HN)
- CLC (HO)
- CLC (HP)
- CLC (HQ)
- CLC (HR)
- CLC (HS)
- CLC (HT)
- CLC (HU)
- CLC (HV)
- CLC (HW)
- CLC (HX)
- CLC (HY)
- CLC (HZ)
- CLC (IA)
- CLC (IB)
- CLC (IC)
- CLC (ID)
- CLC (IE)
- CLC (IF)
- CLC (IG)
- CLC (IH)
- CLC (II)
- CLC (IJ)
- CLC (IK)
- CLC (IL)
- CLC (IM)
- CLC (IN)
- CLC (IO)
- CLC (IP)
- CLC (IQ)
- CLC (IR)
- CLC (IS)
- CLC (IT)
- CLC (IU)
- CLC (IV)
- CLC (IW)
- CLC (IX)
- CLC (IY)
- CLC (IZ)
- CLC (JA)
- CLC (JB)
- CLC (JC)
- CLC (JD)
- CLC (JE)
- CLC (JF)
- CLC (JG)
- CLC (JH)
- CLC (JI)
- CLC (JJ)
- CLC (JK)
- CLC (JL)
- CLC (JM)
- CLC (JN)
- CLC (JO)
- CLC (JP)
- CLC (JQ)
- CLC (JR)
- CLC (JS)
- CLC (JT)
- CLC (JU)
- CLC (JV)
- CLC (JW)
- CLC (JX)
- CLC (JY)
- CLC (JZ)
- CLC (KA)
- CLC (KB)
- CLC (KC)
- CLC (KD)
- CLC (KE)
- CLC (KF)
- CLC (KG)
- CLC (KH)
- CLC (KI)
- CLC (KJ)
- CLC (KK)
- CLC (KL)
- CLC (KM)
- CLC (KN)
- CLC (KO)
- CLC (KP)
- CLC (KQ)
- CLC (KR)
- CLC (KS)
- CLC (KT)
- CLC (KU)
- CLC (KV)
- CLC (KW)
- CLC (KX)
- CLC (KY)
- CLC (KZ)
- CLC (LA)
- CLC (LB)
- CLC (LC)
- CLC (LD)
- CLC (LE)
- CLC (LF)
- CLC (LG)
- CLC (LH)
- CLC (LI)
- CLC (LJ)
- CLC (LK)
- CLC (LL)
- CLC (LM)
- CLC (LN)
- CLC (LO)
- CLC (LP)
- CLC (LQ)
- CLC (LR)
- CLC (LS)
- CLC (LT)
- CLC (LU)
- CLC (LV)
- CLC (LW)
- CLC (LX)
- CLC (LY)
- CLC (LZ)
- CLC (MA)
- CLC (MB)
- CLC (MC)
- CLC (MD)
- CLC (ME)
- CLC (MF)
- CLC (MG)
- CLC (MH)
- CLC (MI)
- CLC (MJ)
- CLC (MK)
- CLC (ML)
- CLC (MN)
- CLC (MO)
- CLC (MP)
- CLC (MQ)
- CLC (MR)
- CLC (MS)
- CLC (MT)
- CLC (MU)
- CLC (MV)
- CLC (MW)
- CLC (MX)
- CLC (MY)
- CLC (MZ)
- CLC (NA)
- CLC (NB)
- CLC (NC)
- CLC (ND)
- CLC (NE)
- CLC (NF)
- CLC (NG)
- CLC (NH)
- CLC (NI)
- CLC (NJ)
- CLC (NK)
- CLC (NL)
- CLC (NM)
- CLC (NN)
- CLC (NO)
- CLC (NP)
- CLC (NQ)
- CLC (NR)
- CLC (NS)
- CLC (NT)
- CLC (NU)
- CLC (NV)
- CLC (NW)
- CLC (NX)
- CLC (NY)
- CLC (NZ)
- CLC (OA)
- CLC (OB)
- CLC (OC)
- CLC (OD)
- CLC (OE)
- CLC (OF)
- CLC (OG)
- CLC (OH)
- CLC (OI)
- CLC (OJ)
- CLC (OK)
- CLC (OL)
- CLC (OM)
- CLC (ON)
- CLC (OO)
- CLC (OP)
- CLC (OQ)
- CLC (OR)
- CLC (OS)
- CLC (OT)
- CLC (OU)
- CLC (OV)
- CLC (OW)
- CLC (OX)
- CLC (OY)
- CLC (OZ)
- CLC (PA)
- CLC (PB)
- CLC (PC)
- CLC (PD)
- CLC (PE)
- CLC (PF)
- CLC (PG)
- CLC (PH)
- CLC (PI)
- CLC (PJ)
- CLC (PK)
- CLC (PL)
- CLC (PM)
- CLC (PN)
- CLC (PO)
- CLC (PP)
- CLC (PQ)
- CLC (PR)
- CLC (PS)
- CLC (PT)
- CLC (PU)
- CLC (PV)
- CLC (PW)
- CLC (PX)
- CLC (PY)
- CLC (PZ)
- CLC (QA)
- CLC (QB)
- CLC (QC)
- CLC (QD)
- CLC (QE)
- CLC (QF)
- CLC (QG)
- CLC (QH)
- CLC (QI)
- CLC (QJ)
- CLC (QK)
- CLC (QL)
- CLC (QM)
- CLC (QN)
- CLC (QO)
- CLC (QP)
- CLC (QQ)
- CLC (QR)
- CLC (QS)
- CLC (QT)
- CLC (QU)
- CLC (QV)
- CLC (QW)
- CLC (QX)
- CLC (QY)
- CLC (QZ)
- CLC (RA)
- CLC (RB)
- CLC (RC)
- CLC (RD)
- CLC (RE)
- CLC (RF)
- CLC (RG)
- CLC (RH)
- CLC (RI)
- CLC (RJ)
- CLC (RK)
- CLC (RL)
- CLC (RM)
- CLC (RN)
- CLC (RO)
- CLC (RP)
- CLC (RQ)
- CLC (RR)
- CLC (RS)
- CLC (RT)
- CLC (RU)
- CLC (RV)
- CLC (RW)
- CLC (RX)
- CLC (RY)
- CLC (RZ)
- CLC (SA)
- CLC (SB)
- CLC (SC)
- CLC (SD)
- CLC (SE)
- CLC (SF)
- CLC (SG)
- CLC (SH)
- CLC (SI)
- CLC (SJ)
- CLC (SK)
- CLC (SL)
- CLC (SM)
- CLC (SN)
- CLC (SO)
- CLC (SP)
- CLC (SQ)
- CLC (SR)
- CLC (SS)
- CLC (ST)
- CLC (SU)
- CLC (SV)
- CLC (SW)
- CLC (SX)
- CLC (SY)
- CLC (SZ)
- CLC (TA)
- CLC (TB)
- CLC (TC)
- CLC (TD)
- CLC (TE)
- CLC (TF)
- CLC (TG)
- CLC (TH)
- CLC (TI)
- CLC (TJ)
- CLC (TK)
- CLC (TL)
- CLC (TM)
- CLC (TN)
- CLC (TO)
- CLC (TP)
- CLC (TQ)
- CLC (TR)
- CLC (TS)
- CLC (TT)
- CLC (TU)
- CLC (TV)
- CLC (TW)
- CLC (TX)
- CLC (TY)
- CLC (TZ)
- CLC (UA)
- CLC (UB)
- CLC (UC)
- CLC (UD)
- CLC (UE)
- CLC (UF)
- CLC (UG)
- CLC (UH)
- CLC (UI)
- CLC (UJ)
- CLC (UK)
- CLC (UL)
- CLC (UM)
- CLC (UN)
- CLC (UO)
- CLC (UP)
- CLC (UQ)
- CLC (UR)
- CLC (US)
- CLC (UT)
- CLC (UU)
- CLC (UV)
- CLC (UW)
- CLC (UX)
- CLC (UY)
- CLC (UZ)
- CLC (VA)
- CLC (VB)
- CLC (VC)
- CLC (VD)
- CLC (VE)
- CLC (VF)
- CLC (VG)
- CLC (VH)
- CLC (VI)
- CLC (VJ)
- CLC (VK)
- CLC (VL)
- CLC (VM)
- CLC (VN)
- CLC (VO)
- CLC (VP)
- CLC (VQ)
- CLC (VR)
- CLC (VS)
- CLC (VT)
- CLC (VU)
- CLC (VV)
- CLC (VW)
- CLC (VX)
- CLC (VY)
- CLC (VZ)
- CLC (WA)
- CLC (WB)
- CLC (WC)
- CLC (WD)
- CLC (WE)
- CLC (WF)
- CLC (WG)
- CLC (WH)
- CLC (WI)
- CLC (WJ)
- CLC (WK)
- CLC (WL)
- CLC (WM)
- CLC (WN)
- CLC (WO)
- CLC (WP)
- CLC (WQ)
- CLC (WR)
- CLC (WS)
- CLC (WT)
- CLC (WU)
- CLC (WV)
- CLC (WW)
- CLC (WX)
- CLC (WY)
- CLC (WZ)
- CLC (XA)
- CLC (XB)
- CLC (XC)
- CLC (XD)
- CLC (XE)
- CLC (XF)
- CLC (XG)
- CLC (XH)
- CLC (XI)
- CLC (XJ)
- CLC (XK)
- CLC (XL)
- CLC (XM)
- CLC (XN)
- CLC (XO)
- CLC (XP)
- CLC (XQ)
- CLC (XR)
- CLC (XS)
- CLC (XT)
- CLC (XU)
- CLC (XV)
- CLC (XW)
- CLC (XX)
- CLC (XY)
- CLC (XZ)
- CLC (YA)
- CLC (YB)
- CLC (YC)
- CLC (YD)
- CLC (YE)
- CLC (YF)
- CLC (YG)
- CLC (YH)
- CLC (YI)
- CLC (YJ)
- CLC (YK)
- CLC (YL)
- CLC (YM)
- CLC (YN)
- CLC (YO)
- CLC (YP)
- CLC (YQ)
- CLC (YR)
- CLC (YS)
- CLC (YT)
- CLC (YU)
- CLC (YV)
- CLC (YW)
- CLC (YX)
- CLC (YY)
- CLC (YZ)
- CLC (ZA)
- CLC (ZB)
- CLC (ZC)
- CLC (ZD)
- CLC (ZE)
- CLC (ZF)
- CLC (ZG)
- CLC (ZH)
- CLC (ZI)
- CLC (ZJ)
- CLC (ZK)
- CLC (ZL)
- CLC (ZM)
- CLC (ZN)
- CLC (ZO)
- CLC (ZP)
- CLC (ZQ)
- CLC (ZR)
- CLC (ZS)
- CLC (ZT)
- CLC (ZU)
- CLC (ZV)
- CLC (ZW)
- CLC (ZX)
- CLC (ZY)
- CLC (ZZ)

WATER SUPPLIES

Property Owner	Water Supply
David A. & Judith Crooks	Switzer Water Association
Brian & Kimberly Hawthorne	Switzer Water Association
Bobby V. & Susan L. King	Switzer Water Association
Bobby V. & Susan L. King	DW-94.00 & DW-94.01 (not used)
Ira O. & Katherine L. Lepley	Switzer Water Association (Tap)
Ira O. & Katherine L. Lepley	DW-20 & W-21 (not used)
Chris E. Perkins	Switzer Water Association
Paula & Gary Moore	Switzer Water Association
Paula & Gary Moore	DS-1 & WL-5 (not used)
John E. & Norma J. Diver	Switzer Water Association
John E. & Norma J. Diver	W-41.00, DW-41.01, DW-41.02 (not used)
John E. & Norma J. Diver	W-41.03 & DW-41.05 (not used)
Ronald R. & Sara Reager	No Public Water Supply in This Area
Ronald R. & Sara Reager	Bottled Water is Delivered
Jason M. May	Switzer Water Association
Jason M. May	DS-6.00 (livestock)
Carol A. Baker	Switzer Water Association
Carol A. Baker	WL-2 & W-3 (not used)

AMERICAN ENERGY CORPORATION

ADJACENT AREA PERMIT D-0425-10 APPLICATION / HYDROLOGY MAP

SECTIONS: 14, 20, and 26	WASHINGTON TOWNSHIP, T-5-N R-4-W, BELMONT COUNTY, OHIO.
SCALE: 1" = 500'	CONTOUR INTERVAL = 20'
DATE PREPARED: FEBRUARY 13, 2009	REVISED: 05-14-2008, 02-09-2009, 03-28-09
DRAWN BY: JMC & DJB	REVISED: 04-15-09, 05-30-09, 06-25-09
CENTURY MINE HORIZONTAL DATUM	NAVD83 VERTICAL DATUM



342 High St., Box 471
Flushing, Ohio 43077
Ph: (740) 968-0477
Fax: (740) 968-4225
e-mail: hamilton@tsl.net
www.hamiltonandassoc.com

2 WORKING DAYS BEFORE YOU DIG
CALL TOLL FREE 800-362-2764
OHIO UTILITIES PROTECTION SERVICE

NOTE:
(1) ALL WATER SAMPLING INFORMATION SHOWN HEREON WAS COMPILED BY QUALITY ENVIRONMENTAL SERVICES (QES) AND IS SHOWN ON THIS MAP AT THE LOCATION DETERMINED BY QES.
(2) BUILDINGS, STRUCTURES, AND CONTOURS SHOWN HEREON ARE FROM THE BELMONT COUNTY GIS AERIAL PHOTOGRAPHY. PHOTOGRAPHY SUPPLEMENTED BY FIELD OBSERVATIONS BY QES DURING THEIR HYDROLOGY INVESTIGATIONS.
(3) UNDERGROUND UTILITY LOCATIONS SHOWN HEREON (BURIED CABLE AND WATER LINES) WERE LOCATED BY QES DURING THEIR HYDROLOGY INVESTIGATIONS AND PROPERTY INVENTORY.
(4) THE ALLISON MINE, POWHATAN NO. 1 MINE, AND OHIO VALLEY COAL COMPANY MINE UNDERGROUND LIMITS PROVIDED BY THE CLIENT, AMERICAN ENERGY CORP.